

My Notes....

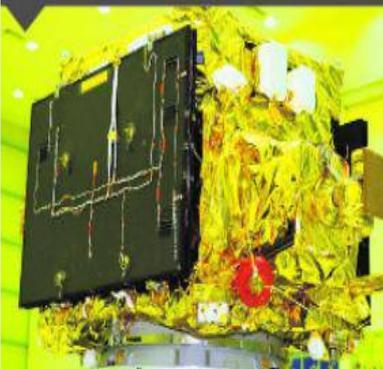
NATIONAL

INDIA'S FIRST HYSIS

On 29 November 2018, Indian Space Research Organisation's reliable workhorse PSLV rocket soared into the skies from Sriharikota's first launch pad carrying with it India's first hyperspectral imaging satellite (HysIS), an advanced earth observation satellite, and 30 foreign satellites. During the 112-minute-long mission, PSLV C43 first delivered India's primary satellite into the polar sun-synchronous orbit at an altitude of 630 km 17 minutes and 27 seconds after the launch, took a round of the globe, and released 30 international co-passengers at a lower orbit of 504 km above India in the second manoeuvre.

What

- The 30 commercial satellites, including one micro and 29 nano satellites are from eight countries. Of the total 30 satellites, 23 are from the US.
- PSLVC43 for the first time launched satellites of Australia, Colombia, Malaysia and Spain.
- HysIS weighing 380kg will be used for a range of applications like agriculture, forestry, soil survey, geology, coastal zones, inland water studies, environmental studies and detection of pollution from industries. Being an earth observation satellite, it will also be used by the military for surveillance or anti-terror operations.
- HysIS has a state-of-the-art technology which will be used for distinct identification of objects, material or processes on the Earth.
- Only a few countries have been able to master this technology. The satellite will start sending images 5 days after the launch.
- HysIS launch is the sixth launch this year. Today's is the second launch within 15 days after Gsat-29 mission on November 14.
- Hyperspectral imaging was first tried by Isro in an 83-kg IMS-1 experimental satellite way back in May 2008 and later on Chandrayaan-1 mission in the same year for mapping lunar mineral resources, this is the first time a full-fledged hyperspectral imaging satellite has been launched.
- Hyperspectral or hypspec imaging combines the power of digital imaging and spectroscopy. It collects and processes information from across the electromagnetic spectrum and enables distinct identification of objects on the Earth by reading the spectrum for each pixel of a scene from space.
- One to capture images in the visible near-infrared (VNIR) range of the light spectrum and another in the shortwave infrared (SWIR) range. The satellite is designed to provide earth observation service for five years till 2023.

<ul style="list-style-type: none"> • PSLV-C43 mission will launch 31 satellites in total into 2 orbits • Slated to last just under 2 hours, it will be ISRO's 3rd longest mission • 30 co-passengers include a micro satellite (100-kg class) and 29 nano satellites (under 10 kg). They are from United 	<ul style="list-style-type: none"> States of America (23), Australia, Canada, Columbia, Finland, Malaysia, Netherlands and Spain (one satellite each) • They foreign satellites together weigh around 261 kg • Their launches were booked with ISRO's arm Antrix Corporation 	<p>The main payload HysIS (in pic) - developed by ISRO - is built to work for five years. It will aid detailed, high-definition study of Earth's surface. It will be placed in a polar orbit 636 km away at an inclination of 97.957 degrees. It alone weighs 380 kg</p> 
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10. The optical imaging detector array chip in the HySIS satellite has been designed by **Isro's Ahmedabad**-based Space Applications Centre and manufactured by its electronic arm, Semi-Conductor Laboratory, Chandigarh.
11. The eight countries whose foreign satellites were delivered by PSLVC43 are the US (22 nano satellites and one micro satellite), Australia (1), Canada (1), Colombia (1), Finland (1), Malaysia (1), Netherlands (1) and Spain (1).

Flashpoint

1. HysIS is an advanced Earth observation satellite that weighs 380kg.
2. This is the first time a full-fledged hyperspectral imaging satellite has been launched. Hyperspectral or hyspex imaging combines the power of digital imaging and spectroscopy.
3. It will be used to study the Earth's surface in visible, near infrared and shortwave infrared regions of the electromagnetic spectrum.
4. The satellite can see in 55 spectral or colour bands. It will be placed in a 636 km polar sun-synchronous orbit with an inclination of 97.957°.
5. It collects and processes information from across the electromagnetic spectrum and enables distinct identification of objects, material or processes on the Earth by reading the spectrum for each pixel of a scene from space.
6. HysIS carries two payloads -- One to capture images in the visible near-infrared (VNIR) range of the light spectrum and another in the shortwave infrared (SWIR) range.
7. The satellite will be used for a range of applications like agriculture, forestry and assessment of coastal zones, inland water studies, soil surveys, environmental studies, detection of pollution from industries and other geological environments.
8. Besides being an Earth observation satellite, HySIS will also be used by the military for surveillance purpose.
9. The satellite will provide Earth observation service till 2023.

INDIA GETS UN ENVIRONMENT AWARD

United Nation Environment has awarded Wildlife Crime Control Bureau (WCCB), Ministry of Environment, Forest and Climate Change, Government of India with Asia Environment Enforcement Awards, 2018 for excellent work done by the Bureau in combating trans-boundary environmental crime. The Asia Environmental Enforcement Award recognizes the excellent work done by Government officials and teams from the bureaus who are diligently involved in combating trans-boundary environmental crime.

What

1. The Asia Environment Enforcement Awards publicly recognize and celebrate excellence in enforcement by government officials and institutions/teams combating transboundary environmental crime in Asia.
2. The awards are given to outstanding individuals and/or government organizations/teams that demonstrate excellence and leadership in enforcement of national laws to combat transboundary environmental crime in one of the following eligibility criteria areas: collaboration; impact; innovation; integrity and gender leadership.
3. WCCB has been conferred this award in Innovation category. WCCB has adopted innovative enforcement techniques that have dramatically increased enforcement of transboundary environmental crimes in India.
4. Notably it has developed an online Wildlife Crime Database Management System to get real time data in order to help analyze trends in crime and devise effective measures to prevent and detect wildlife crimes across India.
5. This system has been successfully used to analyse trends, helping put in preventive measures as well as for successfully carrying out operations such as Operation SAVE KURMA, THUNDERBIRD, WILDNET, LESKNOW, BIRBIL, THUNDERSTORM, LESKNOW-II along with other enforcement agencies resulting in the arrest of 350 wildlife criminals and huge seizures of Tiger/Leopard

Skin/bones and other trophies, Rhino Horn, Elephant Ivory, turtles/tortoises, Mongoose raw hairs as well as Mongoose hair brushes, protected birds, Marine products, live Pangolin as well as its scales, deer antlers etc. across all the states.

6. In order to involve the public in the fight against wildlife crime, WCCB has also developed a scheme to enroll willing persons as WCCB Volunteers.
7. The award was decided upon by a selection panel set up by the UN Environment and this is the second time in a row the awards are being given by UN Environment to India.

UN SELECTS NOIDA IN SDG CITIES INITIATIVE

The United Nations 25 November 2018 **selected Uttar Pradesh's Noida and Greater Noida** to participate in its Global Sustainable Cities 2025 initiative. The twin-cities in Gautam Buddh Nagar district, adjoining the national capital, have been selected in the **"University City" category** ahead of Mumbai and Bengaluru as the only invitee from India, a senior UN official said.

What

1. Overall 25 cities across the world have been selected in five categories by the UN Global Sustainable Development Goals (SDG) cities initiative, Senior UN Advisor and CEO UN Global Sustainability Index Institute Roland Schatz told.
2. Schatz formally extended the invitation 25 November 2018 to Gautam Buddh Nagar District Magistrate Brajesh Narain Singh in the presence of Shubhro Sen, the principal advisor, India, SDG Initiative.
3. The SDGs, otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.
4. **In the "University City" category**, Noida-Greater Noida will be competing with elite university cities such as Cambridge, Palo Alto and Heidelberg.
5. **UNGSII's Sustainable Development Goals Commitment Report (SCR)** overcomes the limitations of current evaluation systems, such as inadequate transparency on evaluation criteria and methodology, inexperienced analysts, backward-looking analysis with limited prognosis, and potential conflicts of interest.

Flashback

1. Sustainable Development Goals (SDGs) are a collection of 17 global goals set by the United Nations General Assembly in 2015.
2. The SDGs are part of Resolution of the United Nations General Assembly "Transforming our World: the 2030 Agenda for Sustainable Development.
3. That has been shortened to "2030 Agenda. The goals are broad and interdependent, yet each has a separate list of targets to achieve.
4. Achieving all 169 targets would signal accomplishing all 17 goals.
5. The SDGs cover social and economic development issues including poverty, hunger, health, education, global warming, gender equality, water, sanitation, energy, urbanization, environment and social justice.

DEFINITION OF KILOGRAM CHANGED

The 26th meeting of the General Conference on Weights and Measures (CGPM) was held during November 13-16 2018 at Palais des Congr s, Versailles, France. CGPM is the highest international body of the world for accurate and precise measurements. The 26th CGPM meeting was very special and historic as the members have voted for the **redefinition of 130 years old "Le grand K - the SI unit of kg" in terms of the fundamental Planck's constant (h)**. The new definitions will come into force on 20 May 2019.

What

1. The CGPM comprises 60 countries including India and 42 Associate Members.
2. The International Bureau of Weights and Measures (BIPM), the main executive body of CGPM has the responsibility of defining the International System of Units (SI).
3. This revision of the SI is the culmination of many years of intensive scientific cooperation between the National Metrology Institutes (The national Physical Laboratory for India) and the BIPM.
4. The dissemination of SI units for the welfare of society and industries in the country is the responsibility of Legal Metrology, Department of Consumer Affairs, Government of India.
5. Out of five draft resolutions the revision of the International System of Units and the definition of timescales are the important. The most important is the resolution on the revision of International System of Units.
6. The definition of the seven base units namely, second, metre, kilogram, ampere, Kelvin, mole and candela has been changed from being linked to artefacts to being based on the fundamental constants on nature.
7. Notably the definition of kilogram has been changed from being the mass of prototype sanctioned by the 1st CGPM held in Paris in 1889 and deposited at the BIPM to the Planck constant which is a physical constant.
8. Likewise, the definition of metre has been changed to link it to the speed of light. There is a change in definition of time also.
9. The change in the definition will result in uniform and worldwide accessible SI system for international trade, high- technology manufacturing, human health and safety, protection of environment, global climate studies and the basic science under-pinning these.
10. The units are expected to be stable in the long term, internally self-consistent and practically realisable being based on the present theoretical description of nature at the highest level.
11. The International prototype of kilogram (IPK) is kept at the BIPM, Paris and serves as the international standard of kilogram.
12. It is made of 90% platinum and 10% iridium and is a cylinder of 39 mm diameter and 39 mm height. Replicas of the IPK are made of the same material and used at BIPM as reference or working standards and national prototype of kilogram (NPK), kept at different National Metrology Institutes (NMIs).
13. NPK-57, kept at CSIR- National Physical Laboratory, is sent periodically to BIPM for calibration. NPK further is being utilised through transfer standards of mass to provide unbroken chain of traceability for dissemination of mass through Legal Metrology to the user industries, calibration laboratories etc.
14. The precise and accurate measurements help country in the production of international quality products and help commerce through elimination of the technical barrier to trade.
15. Kibble balance is a self-calibrating electromechanical balance and provides the measurements of mass, traceable in terms of electrical parameters and provides linkage of macroscopic mass to the Planck constant (h).
16. NPL-UK, NIST-USA, NRC- Canada, PTB-Germany etc. Have successfully developed Kibble balance for 1 kg with an uncertainty of measurement in order of 10⁻⁸. NPL-India, in association with Department of Consumer Affairs, Government of India is looking forward for the development of 1 kg Kibble balance.
17. The advantages of Kibble balance would be that the NPK need not to be sent to BIPM for calibrations and the accuracy and stability of Kibble balance is very high which is very important where low weights with high accuracies are essential, for example in pharmaceuticals and biotechnologies.
18. **After the kilogram's definition is changed officially**- on 20th May, 2019, also known as World Metrology Day- most people will never notice the difference. It

would not change baking ingredients on a kitchen scale, or even have an effect on the tons of goods shipped globally every day.

19. For astronomers calculating the movements of stars and galaxies or for pharmacologists trying to define doses of medications down to the molecule, the new standard of measurement could change the way they work. But for many metrologists, that day to day work is not necessarily what inspired this change.
20. **The metric system was intended to be rational; universal set of units “for all people, for all time”.The SI unit will finally be truly universal system, free of any human artefacts.**

INDIA TO CHAIR KIMBERLEY PROCESS

The Kimberley Process Certification Scheme (KPCS) Plenary 2018 was held in Brussels, Belgium, from 12th-16th November 2018. EU handed over the Chairmanship of KPCS to India from 1st January, 2019.

What

1. India is the founding member of KPCS and is actively involved in KP activities to ensure that almost 99% of the diamond trade in the world is conflict free.
2. India is committed to maintain KP as an efficient and effective process in order to ensure the conflict diamond free status.
3. India is at the forefront in addressing the issue of differentiation between Natural Diamonds and Lab Grown Diamonds and ensures responsible business in this area. India chaired the Ad hoc Committee on Review and Reform (AHCRR).
4. The AHCRR held one joint session with Chairs of other Working Groups and 4 sessions with AHCRR committee members to discuss the issue of funding of Permanent Secretariat (PS), Multi Donor Trust Fund (MDTF), peer review mechanism and consolidation to the core document.
5. This year was the fifteenth anniversary of KPCS. Since its launch in 2003, the Kimberley Process has contributed towards peace, security and prosperity.
6. It has proven to be an effective multilateral tool for conflict prevention in stemming the flow of conflict diamonds. The Kimberley Process has made valuable developmental impact in improving the lives of most people dependent on the trade in diamonds.
7. On expansion of scope KP India stated that KPCS has a well-structured process and any issues discussed should be in relation to trade without mixing up with non-trade issues.
8. The next Intersessional session is slated to be held in India as Chair. Botswana and the Russian Federation will serve as Vice-Chair during the period of 2019-2020.

GLOBAL TALENT RANKING 2018

India has slipped two places to rank 53rd on a global annual talent ranking released by IMD Business School Switzerland on 20 November 2018, while the top slot has been retained by the Alpine nation itself. Within Asia, Singapore has topped the charts with a global 13th place on the list that ranks 63 countries in developing, attracting and retaining talent. China is ranked lower at 39th “because of its difficulties in attracting foreign skilled workers paired with a level of public expenditure in **education that is below the average of other advanced economies”**.

What

1. Regarding India, the renowned business school said its position has declined from 55th in 2017 to 53rd this year.
2. On one hand, the country performs above the average in terms of the quality of its talent pool (Readiness factor, 30th position).
3. On the other, the quality of its educational system and the lack of investments in public education heavily penalise the talent potential of the country (Investment and Development factor, 63rd).

4. The rankings are based on three factors: Investment and Development, Appeal, and Readiness.
5. These factors include indicators that capture the resources invested in developing local talent, the extent to which a country attracts and retains talent, and the quality of skills available in the talent pool.
6. While Switzerland has topped the global ranking for the fifth year in a row, it is followed by Denmark, Norway, Austria and the Netherlands in the top-five.
7. At 6th place, Canada is the only non-European nation in the top ten, which also includes Finland (7th), Sweden (8th), Luxembourg (9th), and Germany (10th).
8. The Slovak Republic (59th), Colombia (60th), Mexico (61st), Mongolia (62nd), and Venezuela (63rd) are the last countries in the ranking.
9. Among BRICS nations, Brazil is ranked 58th, South Africa 50th and Russia 46th.
10. **The IMD said it used “hard data and responses to the IMD Executive Opinion Survey” to produce the ranking. This annual survey compiles input from over 6,000 executives based in 63 different economies.**
11. Economies placed in the top-10 of the ranking generally share high levels of investments in public education and a high quality of life, which allow them both to develop local human capital and to attract highly-skilled professionals from abroad.
12. South East Asian economies, on average, perform well in tapping into the international talent pool, but they tend to lag behind in terms of public investments for the development of homegrown talent.

ACROSS AND NFAR APPROVED

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister Shri Narendra Modi has approved continuation of the nine sub-schemes of the umbrella scheme "Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)" during 2017-2020 at an estimated cost of Rs. 1450 crore. It will be implemented by the Ministry of Earth Sciences through its institutes namely India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM), National Centre for Medium Range Weather Forecasting (NCMRWF), and Indian National Centre for Ocean Information Service (INCOIS). The CCEA also approved establishment of National Facility for Airborne Research (NFAR) with a financial commitment of Rs 130 crore during 2020-21 and beyond.

What

1. The scheme will provide improved weather, climate and ocean forecast and services, thereby ensuring transfer of commensurate benefits to the various services like Public weather service, disaster management, Agro-meteorological Services, Aviation services, Environmental monitoring services, Hydro-meteorological services, climate services, tourism, pilgrimage, power generation, water management, Sports & adventure etc.
2. It generates employment opportunities as sizable number of scientific and technical staff along with requisite administrative support.
3. To ensure last-mile connectivity of the weather based services to the end -user, a large number of agencies like the Krishi Vigyana Kendras of Indian Council of Agricultural Research, Universities and local municipalities are roped in thus generating employment opportunities to many people.
4. ACROSS scheme pertains to the atmospheric science programs of the Ministry of Earth Sciences (MoES) and addresses different aspects of weather and climate services, which includes warnings for cyclone, storm surges, heat waves, thunderstorms etc.
5. Each of these aspects is incorporated as nine sub-schemes under the umbrella scheme "ACROSS" and is implemented in an integrated manner through the aforesaid four institutes.

6. The ACROSS scheme consists of nine sub-programmes which are multi disciplinary and multi institutional in nature and will be implemented in an integrated manner through IMD, HIM, NCMRWF and INCOIS.

7. As the objective of the ACROSS scheme is to provide a reliable weather and climate forecast for betterment of society, the scheme will aim at improving skill of weather and climate forecast through sustained

observations, intensive R & D, and by adopting effective dissemination and communication strategies to ensure its timely reach to the end-user of all services like Agro-meteorological Services, Aviation service, Environmental monitoring services, Hydro-meteorological services, climate services, tourism, pilgrimage, mountaineering etc.

Background

1. The Ministry of Earth Sciences has a mandate to carry out research and development activities to develop and improve capability to forecast weather, climate and natural hazard related phenomena.
2. Towards this direction, MoES has taken several initiatives to formulate specific schemes like augmentation of observing systems and infrastructure, understanding processes through special campaigns, weather and climate modelling, monsoon-research, climate change science & climate services etc.
3. These schemes involve multi-institutes wherein each unit has a designated role for accomplishing the aforesaid tasks. As a result, all these schemes with specific objectives and budget are implemented in an integrated manner and are put together under the umbrella scheme "ACROSS".

MOU REGARDING AIM APPRISED

The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has been apprised of the Memorandum of Understanding (MoU) between Atal Innovation Mission (AIM), India and Fund "Talent and Success", Russia for promotion of science & technology, strong foundation to the collaborative work through exchange of students, teachers, researchers and scientists between both countries. The MoU was signed on October 5, 2018.

What

1. The MoU will facilitate promotion of science & technology, strong foundation to the collaborative work through exchange of students, teachers, researchers and scientists between India and Russia.

Flashback

1. Prime Minister during his visit to Russia during 23-24th December, 2015 visited Sirius Educational Centre in Sochi wherein, it was proposed to invite the Russian students to India to work with Indian students.
2. As a prelude to the recent visit of President of Russian Federation, Mr. Vladimir Putin in the first week of October 2018, ten Russian students visited India to work with ten Indian students from five Atal Tinkering Lab schools in an Innovation Boot Camp at IIT, Delhi during October 1-4, 2018.
3. The students worked on innovative concepts for exploring development of new prototypes in five sectors; healthcare, space technology, clean technology, agri-technology and smart mobility.
4. The prototypes developed were exhibited by the young student innovators before Prime Minister of India Shri Narendra Modi and President of Russian Federation, Mr. Vladimir Putin and on 5th October, 2018.

2. The MOU will provide a mechanism in taking part in establishing relationships with-schools, universities, cultural institutions, science & technology and specialized education institutions, high-tech companies, startups and innovation centers in both countries.
3. The activities are expected to promote creation of new scientific knowledge, generation of intellectual property, innovations and products development in both countries.

GOVT SETS UP TRIBUNAL

The government has set up a tribunal, headed by Delhi High Court Judge Justice Suresh Kait, for adjudicating whether or not two Tripura-based militant outfits should be declared banned organisations under the law. The decision has been taken by Home Ministry, exercising the powers conferred under Unlawful Activities (Prevention) Act.

What

1. **The central government hereby constitutes ‘The Unlawful Activities (Prevention) Tribunal’ consisting of Hon’ble Shri Justice Suresh Kait, Judge of Delhi High Court, for the purpose of adjudicating whether or not there is sufficient cause for declaring the National Liberation Front of Tripura (NLFT) and All Tripura Tiger Force (ATTF) as unlawful associations.**
2. A fresh ban of five years was imposed on the two insurgent groups last month for **their “violent and subversive activities”, which aim at establishment of an independent nation by secession of Tripura from India through armed struggle.**
3. The Home Ministry said NLFT and ATTF have been engaging in subversive and violent activities, undermining authority of the government and spreading terror among people for achieving their objectives.
4. **The outfits, formed in 1990 with the objective of “expulsion of all foreigners who entered the state after 1956”, were first banned in 1997 following riots involving tribals and non-tribals in Tripura’s Khowai subdivision, in which the outfits intervened on behalf of tribals. Tripura shares an 856-km boundary with Bangladesh.**

EXERCISE INDRA

Opening ceremony for the Tenth Indo-Russian Joint Exercise, INDRA 18 scheduled from 18 November to 28 November 2018 was held on 19 November 2018 at Babina Military Station. Contingents of the participating nations came together for the opening ceremony which was held in presence of a number of officers and officials of the participating nations.

What

1. There was a fly past of Army Aviation helicopters which carried the national flags of both the participating nations during the parade.
2. The members of both the participating nations also interacted and familiarised with each other after the opening ceremony.
3. The aim of the exercise is to practice joint planning and conduct to enhance interoperability of the two armies in the peace keeping and enforcement environment under the aegis of United Nations.
4. The eleven day exercise focuses upon training on enhancing team building and tactical level operations in a counter insurgency environment in semi urban terrain.

CAPACITY BUILDING PROGRAMME FOR URBAN WATER MANAGEMENT

NITI Aayog organized on 26 November 2018 the Second Phase of Urban Management Programme on ‘Water Recycling and Reuse’, in collaboration with the Singapore Cooperation Enterprise & TF International at India Habitat Centre in the capital. Highlighting the importance of this capacity building programme on management of

water, particularly its recycling & reuse, as crucial for future urban planning and policy, Amitabh Kant said that attaining high rates of economic growth for India will directly be a function of the sustainable use of water. He mentioned that **NITI's Composite Water Management Index**, launched earlier this year, is a step toward increasing awareness and promoting best practises in water management throughout the country.

What

1. In order to develop recycled water as part of sustainable and diverse water portfolio, NITI Aayog has entered into a Memorandum of Understanding (MoU) with Singapore Cooperation Enterprise - Temasek Foundation International to launch the Second Phase of Urban Management Programme on 'Water Recycling and Reuse'.
2. Eight States/UTs - Uttar Pradesh, Tamil Nadu, Punjab, Chhattisgarh, Karnataka, Meghalaya, Puducherry and West Bengal were selected for the capacity building workshops through a Challenge Method.
3. The participants of the workshops included the senior officials from Municipal and parastatal bodies of these eight States/UTs.
4. The programme launch was also attended by senior officials from the Central and State Governments, and representatives from the academia and think-tanks. The programme launch also showcased the best practices in the urban water sector in India besides discussing the challenges.
5. The capacity building programme featured experience sharing by consultants from Singapore, who were associated in the successful transformation of the urban waterscape over the last four decades.
6. The broader capacity building engagement with SCE also includes a series of interactive workshops, advisory sessions and an expository visit to Singapore.

Background

1. India is experiencing rapid urbanisation. The urban population has gone up from 29 crore in 2001 to 37.7 crore in 2011.
2. Due to rapid urbanisation, water demand in urban areas is increasing rapidly. The water situation in metropolitan cities is particularly exacerbating, where the people in such cities face acute water shortage.
3. Changing climate and its impact on temporal and spatial variability of rainfall, is a further deterrent to timely and sufficient availability of water resources.
4. In this backdrop, concerted efforts have been made by the Government of India to implement rainwater harnessing schemes for groundwater improvement; however, there is an urgent need for water portfolio diversification through introducing alternate sustainable water sources.
5. The recycle and reuse of water presents itself as a potential solution for ensuring assured water supply in the Cities, on a sustainable basis.
6. Recycling and reuse has been widely practised in Singapore, where every drop of water is recycled for reuse. Such an approach not only reduces pressure on other water sources, but also offers a sustainable solution for water resources management.
7. While the AMRUT scheme drives the cities to undertake water supplies on a business model, yet the water source augmentation remains a challenge for ensuring assured water supply through the future.
8. Nearly 30% of urban water supply and 70% of rural water supply in the country comes from groundwater, which is depleting day by day.

KONKAN-18 BEGINS

Naval cooperation between India and the United Kingdom is based on the long term strategic relationship between both countries. Both Navies have, over the years, undertaken bilateral activities such as training exchanges and technical cooperation. The Bilateral KONKAN exercise provides a platform for the two Navies to periodically exercise at sea and in harbour, so as to build interoperability and share best practices.

What

1. The KONKAN series of exercises commenced in 2004, and since then has grown in scale.
2. KONKAN-2018 will be conducted from 28 Nov to 06 Dec 18 off Goa with units participating from both navies.
3. The harbour phase is scheduled from 28 Nov to 30 Nov 18, followed by the sea phase from 02 to 06 Dec 18.
4. The Royal Navy will be represented by HMS Dragon, a Type 45 Class Destroyer equipped with an integral Wildcat helicopter.
5. The Indian Navy will field INS Kolkata, the first ship of latest Kolkata class destroyers, equipped with integral Seaking and an IN submarine. In addition, IN maritime patrol aircraft, Dornier will also participate in the exercise.
6. The regular IN-RN interaction over the years has resulted in an increase in the professional content of the bilateral exercise.
7. The thrust of the exercise this year would be on Anti-Air warfare, Anti-Surface Warfare, Anti-Submarine Warfare, Visit Board Search and Seizure (VBSS) and Seamanship Evolutions. Besides exercises at sea, KONKAN-2018 also encompasses professional interactions and sports fixtures.
8. The exercise is aimed **at deriving mutual benefit from each others'** experiences and is indicative of the continuing cooperation between the two countries.
9. The inter-operability achieved over the years as a result of such exercises has proved to be operationally beneficial to both navies.
10. The naval cooperation is a tangible symbol of the commitment of both nations in ensuring a positive climate at sea for enhancing strategic stability and promoting economic prosperity.

INTERNATIONAL

AUSTRALIA TAKES INDIA TO WTO

Australia said on 16 November 2018 that it was taking legal action against India at the WTO over sugar subsidies, alleging that it caused a "significant downturn" in world prices and hurt Australian producers. Australia alleges that the subsidies, which have seen Indian sugar production leap from an average 20 million tonnes to 35 million tonnes this year, far exceed the level of farmer assistance permitted under WTO rules. The action, known formally as a counter notification, comes after Australia has repeatedly raised the issue with India directly.

What

1. It means the issue will initially be discussed at the WTO's Committee on Agriculture meeting scheduled for later this month.
2. Trade Minister Simon Birmingham said it was time India, the world's second-largest sugar producer, was held accountable for its market distorting policies on sugar.
3. He expressed hope that India would reconsider its position in relation to what are more than USD 1 billion in additional subsidies for sugar producers, "which has pushed global sugar prices to a decade low". Australia is the third largest exporter of sugar.
4. The announcement came two days after Prime Minister Scott Morrison met his Indian counterpart Narendra Modi in Singapore on the sidelines of the East Asia Summit during which the two leaders discussed the issue.

KOREAS GAIN UN SANCTIONS EXEMPTION

South Korea said 24 November 2018 that the United Nations Security Council granted an exemption to sanctions that will allow surveys on North Korean railroad sections the Koreans want to connect with the South. The surveys would require the South to bring to the North fuel and a variety of goods, including possibly cars to test on northern tracks.

What

1. The Koreans plan to hold a groundbreaking ceremony by the end of the year on an ambitious project to connect their railways and roads as agreed by their leaders. But beyond surveys and tape-cuttings, they cannot move much further along without the lifting of U.S.-led sanctions against North Korea, **which isn't** likely before Pyongyang takes firmer steps toward relinquishing its nuclear weapons and missiles.
2. **The plan to modernize North Korea's** outdated railways and roads and reconnect them with the South was among many agreements reached between North Korean leader Kim Jong Un and South Korean President Moon Jae-in, who met three times this year amid a diplomatic push that eased tensions over the **North's nuclear program**.
3. Kim also met with President Donald Trump in Singapore in June, when they issued a statement about a nuclear-free Korean Peninsula without describing how and when it would occur.
4. North Korea insists that sanctions should be removed first before any progress in **nuclear negotiations**. **There's also unease between the** United States and South Korea over the pace of inter-Korean engagement, which Washington says should move in tandem with U.S.-led efforts to denuclearize the North.
5. South Korea initially said that the joint surveys of North Korean railroads **wouldn't violate U.N. sanctions** and had hoped to start them in October. Seoul later said that Washington had different views and the two sides had discussed the matter in a newly launched working group.
6. Even if the North takes concrete steps toward denuclearization and gains sanctions relief, experts say updating North Korean rail networks and trains, which creak slowly along the rails that were first built in the early 20th century, would require a massive effort that could take decades and tens of billions of dollars.
7. U.N. sanctions against North Korea have strengthened significantly since 2016 as Pyongyang stepped up its weapons tests.
8. The measures now include **trade bans on "dual-use"** technology that could potentially be used for weapons development, transport vehicles and machinery and import caps on fuel.
9. **Washington's own sanctions against Pyongyang restrict an even broader range of** economic activities and target a larger list of companies and individuals.

SPAIN DIGS IN ON GIBRALTAR

Spanish reservations over Gibraltar on 23 November 2018 prevented the European Union clearing the last hurdle before a summit that is due to endorse the **bloc's Brexit deal** with Britain on 25 November 2018. British Prime Minister Theresa May will pick up the baton when she holds talks in Brussels with Jean-Claude Juncker, head of the **EU's executive Commission**.

What

1. National negotiators of the 27 EU states staying on together after Brexit reached no agreement on Gibraltar on 23 November 2018. With four months left until Britain leaves the EU, the legal divorce treaty and an accompanying political declaration are due to be rubber-stamped in Brussels by May and the other 27 EU leaders so that they can then go to the respective parliaments.
2. Spain has asked for changes to both the draft withdrawal treaty and the accompanying declaration on future ties to spell out that any decisions about Gibraltar, a rocky, peninsular British overseas territory that Spain

claims as its own, would only be taken together with Madrid. Spain says Britain had given it corresponding assurances before publishing its latest draft.

3. At summit, the EU leaders would expect to endorse the treaty and approve the declaration by consensus, which means Spain in effect has the power to hold up the process.
4. The biggest obstacle to the Brexit accord is the vehement opposition in the British parliament. Without its approval, Britain could leave the bloc on March 29 without an agreement to mitigate economic and legal disruption.
5. The Brexit deal covers financial **settlement, citizens' rights and the Irish border**, as well as setting a blueprint for future trade and security ties.

Flashback

1. Gibraltar is a British Overseas Territory and headland, on Spain's south coast.
2. **It's dominated by the Rock of Gibraltar**, a 426m-high limestone ridge. First settled by the Moors in the middle Ages and later ruled by Spain, the outpost was ceded to the British in 1713.
3. Layers of fortifications include the remains of a 14th-century Moorish Castle and the 18th century Great Siege Tunnels, which were expanded in WWII.

EU LEADERS APPROVE BREXIT DEAL

European leaders gave Theresa May her Brexit deal but warned that the UK Parliament must vote for the plan it stands because negotiations will not be reopened if British politicians reject it. On 25 November 2018, the prime minister got her agreement on the **UK's divorce from the European Union at a special summit in Brussels**, when the leaders of the 27 other member countries backed the legal text.

What

1. May now faces huge opposition from her own Conservative Party as she tries to persuade Parliament to back it. Even government ministers admit they have work to do to avoid defeat.
2. If May loses the vote in the House of Commons, which is expected to be held in December, the UK will be on course to exit the EU in March with no agreement and no transition period to cushion the blow. Some politicians want to send her back to Brussels to renegotiate if her first attempt is voted down.
3. As they gathered for the summit in Brussels on 25 November 2018, EU leaders were united in saying that the deal on the table is the best the UK will get.
4. It is important that everyone in the UK is aware of the fact that this agreement is the final result, Austrian Chancellor Sebastian Kurz told reporters. It will definitely not be renegotiated and there will be no further leeway.
5. **The EU's chief Brexit negotiator Michel Barnier issued what sounded like a warning to Tories that they need to ratify the agreement if they want the next phase of talks -- focusing on the future trade terms -- to go well.**

Flashback

1. Brexit a portmanteau of "British exit from the European Union", is the impending withdrawal of the United Kingdom from the European Union (EU).
2. It follows from the referendum of 23 June 2016 when 52 percent of those who voted in the referendum supported withdrawal.
3. On 29 March 2017, the UK government invoked Article 50 of the Treaty on European Union.
4. The UK had joined the European Communities (EC) in 1973, with membership confirmed by a referendum in 1975.

6. This deal is a necessary step to build the trust between the UK and the EU that we need for the next phase of this unprecedented and ambitious partnership.
7. **It's the best** deal possible and the European Union will not change its fundamental position when it comes to this issue.

INDIA TO PRESS FOR A BETTER DEAL

India will press for a better trade deal with China as part of the ongoing negotiations for the proposed mega trade deal - RCEP, which is slated to be concluded next year, official sources said. In view of the widening trade deficit with China, India wants to give zero duty market access to less number of Chinese goods as compared to other RCEP member countries in the proposed mega trade agreement. Besides, India is also seeking more time to eliminate duties on Chinese goods as part of the deal.

What

1. The Regional Comprehensive Economic Partnership (RCEP) is a proposed free trade agreement being negotiated by 16 countries, including 10 Asean members (Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Singapore, Thailand, the Philippines, Laos and Vietnam) and their six free trade agreement partners - India, China, Japan, South Korea, Australia and New Zealand, since November 2012.
2. The members want India to remove tariffs or customs duties on about 90-92 per cent items that it trades with the countries with which it has a free trade agreement and includes Asean and Japan.
3. With the non-free trade agreement partners -- China, Australia and New Zealand - discussions are on for eliminating duties on 80-86 per cent of the products.
4. India has asked for 20 years period to remove these duties. But with China, it wants more time for elimination of tariffs.
5. Several domestic industries, including steel, food processing and metals, and government departments are raising concerns over the presence of China in the RCEP group.
6. They have stated that lowering or eliminating duties for China will flood Indian markets with Chinese goods.
7. India is looking for a balanced trade agreement as it would cover 40 per cent of the global GDP and over 42 per cent of the world's population.
8. The mega pact aims to relax norms and significantly cut import duties to boost trade in goods, services, promote investments, technical cooperation, and intellectual property rights.

KOREAS BID FOR UNESCO RECOGNITION

North and South Korea are making a first joint bid for an international recognition of Korean traditional wrestling. South Korean culture officials said a UNESCO committee is set to determine whether to add the Korean wrestling to its list of **"Intangible Cultural Heritage of Humanity" this week.**

What

1. **The Koreas had earlier pushed separate bids for the sport's UNESCO** recognition, but the cooperation follows an easing of tension on the divided peninsula amid a flurry of exchanges this year.
2. **South Korea had first proposed the joint bid during a leaders' summit at the** Korean border village in April.
3. The Koreas were originally a single country before their separation in 1945. **Split along the world's most** heavily fortified border, the countries now have linguistic, cultural and other gaps. They use different English

Romanization rules. **The wrestling's English spelling is "ssirum" in North Korea and "ssireum" in South Korea.**

4. **South Korea's Cultural Heritage Administration**, the Koreans use both spellings for their combined bid.
5. North Korea has won UNESCO recognitions of two Korean cultural assets — the **Korean folk tune "Airrang" and the making of Kimchi.**
6. The two are among the 19 items that South Korea has received UNESCO recognition for, according to South Korean officials.
7. In the Korean wrestling, participants with a belt around their waists and thighs use their hands, legs and other body parts to bring down their opponents to the sand ground. In South Korea, it gained wide popularity the 1980s, threatening the long-running popularity of baseball and soccer.

INDIA EXTENDS AID FOR BORDER DEVELOPMENT PROJECTS

India has extended aid worth \$5 million to Myanmar for development projects on the Indo-Myanmar border. **India's Ambassador to Myanmar, Vikram Misri handed over a cheque of \$5 million to Myanmar's Minister for Border Affairs, Lt General Ye Aung at a ceremony.** Under the 2012 Border Region Development agreement, the Indian government would be extending \$5 million micro development assistance every year for five years for projects on India-Myanmar border.

What

1. India and Myanmar signed a Memorandum of Understanding (MoU) for border development in May 2012. Under the MoU India is to provide a total of \$25 million to Myanmar. This would divide into five tranches of \$5 million each.
2. Under the first year project plan, 21 schools, 17 health centres and eight bridges are being built in Chin State and the Naga Self Administered Zone of **Myanmar through the Myanmar's Border Affairs** ministry, according the information available on the website of the Indian Embassy in Myanmar.
3. The Myanmar government is in the process of selecting contractors to execute the second year projects under which five road projects each would be completed in Chin and Naga Self-Administered Zone, it said.
4. Three schools would be also set in Chin state and eight in the Naga Self-Administered Zone.
5. Myanmar shares around 1600 km border with four Northeastern Indian states? Manipur, Nagaland, Arunachal Pradesh and Mizoram.

DJIBOUTI GETS FIRST INDIA-BUILT CENTRE

With China having set up its first naval base in Djibouti, India is making small moves to establish its own presence in the country. On 23 November 2018, Djibouti President Ismail Omar Guelleh inaugurated a centre of entrepreneurship and innovation built by India.

What

1. Built in a record time of two years, the project is one of the first targeting small businesses in Djibouti, but more important, it is a project that was specifically asked for by the Djibouti government. In November 2016, India had provided a \$5 million grant to build an incubation centre in Djibouti.
2. The Indian mission in Ethiopia and Djibouti said, the centre, powered by solar energy, has been established to expose the youth to the entire ecosystem of entrepreneurship. India had already provided \$49.13 million to build a cement factory.

ECONOMY

OUTCOME OF RBI BOARD MEETING

The Reserve Bank of India (RBI) said on 19 November 2018 it has decided to set up an expert panel to examine the economic capital framework of the central bank, in a move that could prompt a rethink of what constitutes adequate capital reserves for the central bank. Government officials have been pressuring RBI to accede to a range of demands, from easing lending curbs to handing over surplus reserves to the government.

What

1. The government and the central bank will jointly decide on the members of the panel and the scope of the panel, RBI said in a statement on 19 November 2018.
2. In addition, RBI said its financial supervision board will examine the issue around easing of the prompt corrective action plan for some banks—another key of contention between the government and the central bank.

Agrees to improve liquidity

1. The board of the Reserve Bank of India (RBI) on 19 November 2018 agreed to ease liquidity for the financial sector and increase credit to small businesses.
2. Some more contentious issues were kicked down the road to be discussed by newly formed committees.
3. The government has been pressuring RBI to reduce capital ratios for banks to speed up loans to small businesses, a key vote bank for Modi.
4. There are five key state elections in the next few weeks and a general election due by May.
5. The meeting happened in a very cordial environment. Most of the issues were resolved in an amicable manner, a board member, who attended the meeting.
6. A panel will be formed to work out a framework to determine the reserves requirements of the RBI and transfer surplus funds to the government, the board member said.
7. A litany of demands from top finance ministry officials prompted warnings from RBI deputy governor Viral Acharya last month that undermining central bank **independence could be “catastrophic,” triggering a public feud between the bank and the government.**

SEZ POLICY REPORT SUBMITTED

The Baba Kalyani led committee constituted by the Ministry of Commerce & Industry to study the existing SEZ policy of India submitted its report to the Union Minister for Commerce & Industry and Civil Aviation, Suresh Prabhu, in New Delhi on 19 November 2018.

What

1. While submitting the report to the Commerce Minister, Baba Kalyani, Chairman, Bharat Forge Ltd., said that if India is going to become a USD 5 trillion economy by 2025 then the current environment of manufacturing competitiveness and services has to undergo a basic paradigm shift.
2. The success seen by services sector like IT and ITES has to be promoted in other services sector like health care, financial services, legal, repair and design

The objectives of the committee were

1. To evaluate the SEZ policy and make it WTO compatible
2. Suggest measures for maximizing utilisation of vacant land in SEZs
3. Suggest changes in the SEZ policy based on international experience
4. Merge the SEZ policy with other Government schemes like coastal economic zones, Delhi-Mumbai industrial corridor, national industrial manufacturing zones and food and textiles parks.

services.

3. The Government of India has set a target of creating 100 million jobs and achieving 25% of GDP from the manufacturing sector by 2022, as **part of its flagship 'Make in India' programme.**
4. Furthermore, the Government plans to increase manufacturing value to USD 1.2 trillion by 2025. While these are ambitious plans to propel India into a growth trajectory, it requires evaluation of existing policy frameworks to catalyse manufacturing sector growth. At the same time, policy needs to be compiled with the relevant WTO regulations.
5. In his interaction with the committee Suresh Prabhu said that the suggestions of the committee are very constructive and the Commerce Ministry will immediately begin formal consultations with the Finance Ministry and other **Ministries so that implementation of the committee's recommendations** may be done without any delay.

INDIA'S EMPLOYABILITY RISES TO 47%

The percentage of employable population in India grew to 47 per cent this year, with engineers being the most employable, a report said on 22 November 2018. Employability rose by 14 percentage points in the last five years, from 33 per cent in 2014, according to India Skills Report, which was jointly published by Wheebox, PeopleStrong and the Confederation of Indian Industry (CII).

What

1. Around 57 per cent of the final-year engineering graduates were found to be employable, an increase of about five percentage points since last year.
2. Employability among masters of business administration (MBA) graduates, however, has dropped by three percentage points over last year, the report said, without specifying the exact number.
3. It seems that with exponential increase in the number of MBA colleges, the quality of talent is seen to be declining. The report also found that there has been a drop in employability of bachelor of pharmacy (BPharma) graduates.
4. Andhra Pradesh had the highest employability among states, followed by Rajasthan and Haryana, which have made their entry into the top 10 ranking for the first time.
5. Madhya Pradesh, Gujarat, and Punjab moved out from the top 10 list this year.
6. There has been an increasing presence of employable talent in tier-II and III cities. This trend can be seen in spite of lack of big institutions such as IITs and IIMs or any other renowned institutes in tier II and III cities.
7. The report took into account 5,200 universities and professional institutions in the country, with over three lakh students across 29 states and seven Union territories.

NEW DIVISION FOR STARTUPS

To make stock market listing attractive for startups, BSE Ltd on 28 November 2018 announced the creation of a new division within its SME segment to list the new-age companies. The startup listing platform will facilitate the listing of companies in sectors like IT, ITeS, biotechnology and life sciences, 3D printing, space technology and e-commerce. The platform will also aid in listing of firms from hi-tech defence, drones, nano technologies, artificial intelligence, big data, virtual reality, e-gaming, robotics, genetic engineering, among other sectors.

What

1. Spelling out the startup listing norms, BSE said the company should be registered as a startup with the Ministry of Micro, Small & Medium Enterprises or Department of Industrial Policy & Promotion.
2. In case the company is not registered as a startup, then its paid-up capital should be minimum 1 crore.

3. The company should be in existence for a minimum period of two years, besides qualified institutional buyer (QIB) or angel investor or any other accredited investor should have invested in the firm for a minimum period of two years at the time of filing of the draft prospectus with the BSE.
4. The firm should have positive net-worth and none of the promoters or directors of the startup should have been debarred by any regulatory agency.
5. Further, the exchange said, the firm seeking to list on the platform should not have been referred to National Company Law Tribunal (NCLT) under Insolvency and Bankruptcy Code and there should be no winding up petition against the company that has been accepted by NCLT.
6. Earlier, the BSE had announced to launch startup platform on 9 July in its SME (small and medium enterprise) segment, however, later it had postpone the launch.

INDIA IS FASTEST GROWING E-COMMERCE MARKET

India has the fastest growing online retail market among top global economies. The **country's online retail market witnessed a compound annual growth rate (CAGR)** of 53% for the period 2013 to 2017, according to a latest report by consultancy firm Bain & Company. The rapid growth, albeit over a small base, has been driven by aggressive discount-driven e-commerce marketplaces, advances in delivery infrastructure and increased smartphone penetration and data usage.

What

1. These conditions are giving rise to large retail ecosystems. **What we're seeing** is the emergence of scale open retail ecosystem platforms across the Asia Pacific region that offers retailers a compelling alternative to building and scaling their own capabilities.
2. Retail ecosystems comprise communities of consumers, retailers and partners that rapidly reshape the retail landscape.
3. They deliver a very sticky consumer proposition by combining services like e-commerce, chat, streaming, gaming or payments in a single platform or app, which shoppers are adopting globally, the report said.
4. While Alibaba and Tencent lead the best-known Asian ecosystems, India too is witnessing the emergence of retail eco-systems, led by Reliance, Flipkart/Walmart, Amazon/Future Group and Alibaba.
5. **India's total e-commerce** retail sales in 2017 were pegged at around \$20 billion and studies have indicated that another \$50 billion of online e-commerce could be unlocked by adding new users and luring back internet users that do not currently shop online due to various reasons.
6. Despite the rapid growth, online retail penetration in India is low at 5% compared with markets such as China (20%) and the US (12%). India was ranked eighth in terms of online retail penetration among 11 countries.
7. Consumer electronics segment in India has the highest online penetration (17%, which is e-commerce sales as percentage of total retail sales) followed by apparel and footwear (9%) and beauty and personal care (1%). Food & grocery, with overall retail sales of around \$530 billion in 2017, has one of the lowest online penetrations at 0.1%.

SCIENCE AND TECHNOLOGY

NEW METHOD TO REMOVE MERCURY FROM WATER

This is the first time the technique with electrochemical alloying has been used for decontamination purposes. Scientists have developed a method to efficiently clean water contaminated with toxic mercury — one of the major causes of environmental damage and health problems worldwide. Mercury spreads very easily through nature, and can enter the food chain. Freshwater fish, for example, often contain high levels of mercury.

What

1. According to the World Health Organization (WHO), mercury is one the most harmful substances for human health.
2. It can influence the nervous system, the development of the brain, and more. It is particularly harmful for children and can also be transmitted from a mother to a child during pregnancy.
3. Our new method makes it possible to reduce the mercury content in a liquid by more than 99 per cent. This can bring the water well within the margins for safe human consumption, said Bjorn Wickman, from Chalmers University of Technology in Sweden.
4. The method, described works via extracting the heavy metal ions from water by encouraging them to form an alloy with another metal.
5. Today, cleaning away the low, yet harmful, levels of mercury from large amounts of water is a major challenge. Industries need better methods to reduce the risk of mercury being released in nature.
6. The new method involves a metal plate — an electrode — that binds specific heavy metals to it. The electrode is made of the noble metal platinum, and through an electrochemical process it draws the toxic mercury out of the water to form an alloy of the two.
7. In this way, the water is cleaned of the mercury contamination. The alloy formed by the two metals is very stable, so there is no risk of the mercury re-entering the water.
8. An alloy of this type has been made before, but with a totally different purpose in mind. This is the first time the technique with electrochemical alloying has been used for decontamination purposes.
9. Strength of the new cleaning technique is that the electrode has a very high capacity. Each platinum atom can bond with four mercury atoms.
10. Furthermore, the mercury atoms do not only bond on the surface, but also penetrate deeper into the material, creating thick layers.
11. This means the electrode can be used for a long time. After use, it can be emptied in a controlled way. Thereby, the electrode can be recycled, and the mercury disposed of in a safe way. A further positive for this process is that it is very energy efficient.

SPACE X GETS NOD TO PUT 12,000 SATELLITES

SpaceX got the green light this week from US authorities to put a constellation of nearly 12,000 satellites into orbit in order to boost cheap, wireless internet access by the 2020s. The SpaceX network would vastly multiply the number of satellites around Earth.

What

1. **Since the world's first artificial satellite, Sputnik, was launched in 1957**, humanity has sent just over 8,000 objects into space, according to the United Nations Office for Outer Space Affairs. Between one quarter and one half of those are believed to still be operational.
2. The US Federal Communications Commission (FCC) announced it had authorised SpaceX to launch 7,518 satellites, adding to 4,425 satellites it has already approved. None of the satellites has launched yet.
3. **Elon Musk's company has six years to put half in orbit**, and nine years to complete the satellite network, according to FCC rules.
4. SpaceX wants most of the satellites to fly in low Earth orbit, about 208 to 215 miles (335 to 346 kilometers) high.
5. That would put them below the International Space Station, which orbits about 250 miles (400 kilometers) above Earth.
6. **SpaceX's interest in such a low orbit is to shorten the communication time between internet users on Earth and space-faring satellites, speeding up surfing speeds.**

7. But this low altitude may be difficult to maintain and smaller satellites tend to have shorter lives than bigger ones.
8. The FCC has also authorized other companies to launch satellites, including Kepler (140 satellites), Telesat (117 satellites), and LeoSat (78 satellites).

KEPLER PUT TO REST

NASA's Kepler space telescope, that discovered thousands of planets outside our solar system and revealed that our galaxy contains more planets than stars, has received its final set of commands to disconnect communications with Earth. The **"goodnight" commands finalise the spacecraft's transition into retirement, which began on October 30 with NASA's** announcement that Kepler had run out of fuel and could no longer conduct science, the US space agency said.

What

1. **Coincidentally, Kepler's "goodnight" falls on the same date as the 388-year anniversary of the death of its namesake, German astronomer Johannes Kepler, who discovered the laws of planetary motion and passed away on November 15, 1630.**
2. The Kepler space telescope has had a profound impact on our understanding of the number of worlds that exist beyond our solar system.
3. As a farewell to the spacecraft, we asked some of people closest to Kepler to reflect on what Kepler has meant to them and its finding of a more planets than stars.
4. The spacecraft was drifting in a safe orbit around the Sun, 94 million miles away from Earth.
5. Launched on March 6, 2009, the Kepler telescope combined cutting-edge techniques in measuring stellar brightness with the largest digital camera outfitted for outer space observations at that time.
6. Originally positioned to stare continuously at 150,000 stars in one star-studded patch of the sky in the constellation Cygnus, Kepler took the first survey **of planets in our galaxy and became NASA's first mission to detect Earth-size planets in the habitable zones of their stars.**
7. **Kepler's more advanced successor is the Transiting Exoplanet Survey Satellite (TESS), launched this April. TESS builds on Kepler's foundation with fresh batches of data in its search of planets orbiting some 200,000 of the brightest and nearest stars to the Earth.**

RARE GAMMA-RAY BURST

In a second only to the Big Bang event, astronomers have identified a **"nearby"** star system with the potential to produce a gamma-ray burst, one of the most energetic events in the universe. According to a research published, scientists revealed they have located the first of this rare star system in our galaxy, just 8,000 light years from earth.

What

1. A gamma-ray burst from a star like this has the capacity to strip the earth of its Ozone layer; thankfully it was too far away.
2. We knew immediately that we have found something quite exceptional, the luminosity across the spectrum from the radio to the infrared was off the charts, lead author Joe Callingham from the Netherlands Institute for Radio Astronomy said.
3. The system was nicknamed Apep. **Two of Apep's stars are of the Wolf-Rayet variety meaning they are massive and reaching the end of their life.**
4. These stars could explode into supernovae at any time, and could result in a cataclysmic **gamma-ray event combining with the system's extreme conditions.**
5. The rapid rotation puts Apep into a whole new class, co-author Benjamin Pope from New York University said.

6. Normal supernovae are already extreme events but adding rotation to the mix can really throw gasoline on the fire.

NASA SELECTS LANDING SITE

NASA has chosen Jezero Crater delta, where the sediments contain clays and carbonates, as the landing site for its upcoming Mars 2020 Rover mission, the US space agency said. Jezero Crater, 45 kilometres in size, is located on the western edge of Isidis Planitia — a giant impact basin just north of the Martian equator. Its ancient lake-delta system offers many promising sampling targets of at least five different kinds of rock, including clays and carbonates that have high potential to preserve signatures of past life.

What

1. The landing site in Jezero Crater offers geologically rich terrain, with land forms reaching as far back as 3.6 billion years, that could potentially answer important questions in planetary evolution and astrobiology, Thomas **Zurbuchen, associate administrator for NASA's Science Mission Directorate**, said. Getting samples from this unique area will revolutionize how we think about Mars and its ability to harbour life.
2. The crater, once home to an ancient river delta, could have collected and preserved ancient organic molecules and other potential signs of microbial life from the water and sediments that flowed into the crater billions of years ago.
3. In addition, the site contains numerous boulders and rocks to the east, cliffs to the west, and depressions filled with aeolian bedforms (wind-derived ripples in sand that could trap a rover) in several locations.
4. Selecting a landing site this early allows the Rover drivers and science operations team to optimise their plans for exploring Jezero Crater once the Rover is safely on the ground.
5. The Rover mission is scheduled to launch in July 2020 as **NASA's next step in exploration of the Red Planet**. It will not only seek signs of ancient habitable conditions and past microbial life but will also collect rock and soil samples and store them in **a cache on the planet's surface**.
6. Earlier in November, ExoMars rover — the European Space Agency (ESA) and **Russian Roscosmos' joint venture to the Red Planet that will set out in 2020** — also chose a landing site on **Mars' equator called Oxia Planum**, which had in the prehistoric era housed a massive pool of water.

INDIA'S FIRST VOLTE INTERNATIONAL ROAMING

Reliance Jio Infocomm Ltd. (Jio) on 21 November 2018 announced the launch of VoLTE-based inbound international roaming between India and Japan. With this, Jio has become **India's first 4G mobile operators to provide VoLTE**-based international roaming services in India, whereby international roamers will be enjoying HD voice and LTE high-speed data.

What

1. Japan-based KDDI Corporation is the first international mobile service provider to **avail of Jio's VoLTE calling and LTE data international roaming service**, which provides international travellers with access to high-speed data and **voice services on Jio's all-IP, 4G-exclusive network**.
2. Reliance Jio is focused on delivering the best data and voice experience to all of India and those who visit India.
3. With this new arrangement, international travellers will be able to experience **Jio's all-IP network**, which had an average download speed of 20.6 Mbps during September 2018.
4. Jio is currently the 9th largest mobile operator in the world with over 252 million subscribers within two years of launch.

5. Reliance owned Jio has also made leaps in providing high-speed internet by announcing the launch of Jio GigaFiber, which is expected to provide speeds up to 1 Gbps.
6. The service started accepting applications in August this year and has promised to deliver high-speed internet in a few select areas with highest interest. Details on when the service will finally be announced are not out yet.

Flashback

1. Voice over long-term evolution (Voice over LTE/VoLTE) is a technology specification that defines the standards and procedures for delivering voice communication and data over 4G LTE networks.
2. It is one method for creating, provisioning and managing high-speed voice, video and messaging services on a 4G wireless network for mobile and portable devices.
3. VoLTE primarily works on IP-based networks and only supports packet switching.
4. The data received from a circuit-switched cellular network such as the Global System for Mobile Communications (GSM) or a Code Division Multiple Access (CDMA) network will be converted into network packets before being broadcast. VoLTE uses IP multimedia subsystem (IMS) based networks to offer these services.
5. It will not work on networks that are not compatible with or that have not integrated IMS within their core architecture.
6. The services that can be provisioned using VoLTE include video calling, voice calling, and multimedia streaming and sharing services.

TRAPPIST-1 SYSTEM

At least one of the seven rocky planets orbiting the dwarf star TRAPPIST-1 could be an Earth-like ocean world, say scientists who created updated climate models for the exoplanets. Researchers from University of Washington in the US said that due to an extremely hot, bright early stellar phase, **all seven of the star's worlds may have** evolved like Venus. Any early oceans the planets may have had evaporated, leaving behind dense, uninhabitable atmospheres.

What

1. TRAPPIST-1, located 39 light-years away, has about nine per cent the mass of the Sun and about 12 per cent its radius.
2. The **relatively cool "M dwarf" star** — the most common type in the universe — has a radius only a little bigger than the planet Jupiter, though it is much greater in mass.
3. All seven of TRAPPIST-1's **planets are about the size of Earth and three of them** — planets labeled e, f and g — are believed to be in its habitable zone, that swath of space around a star where a rocky planet could have liquid water on its surface, thus giving life a chance.
4. TRAPPIST-1 d rides the inner edge of the habitable zone, while farther out, TRAPPIST-1 h, **orbits just past that zone's outer edge.**
5. TRAPPIST-1 b, the closest to the star, is a blazing world too hot even for clouds of sulfuric acid, as on Venus, to form. Planets c and d receive slightly more energy from their star than Venus and Earth do from the sun and could be Venus-like, with a dense, uninhabitable atmosphere.
6. TRAPPIST-1 e is the most likely of the seven to host liquid water on a temperate surface, and would be an excellent choice for further study with habitability in mind. The outer planets f, g and h could be Venus-like or could be frozen, depending on how much water formed on the planet during its evolution.
7. Actually, any or all of TRAPPIST-1's **planets could be Venus-like**, with any water or oceans long burned away. He explained that when water evaporates from

a planet's surface, ultraviolet light from the star breaks apart the water molecules, releasing hydrogen, which is the lightest element and can escape a planet's gravity.

8. This could leave behind a lot of oxygen, which could remain in the atmosphere and irreversibly remove water from the planet. Such a planet may have a thick oxygen atmosphere — but not one generated by life, and different from anything yet observed.

SMART VACCINE FOR GOAT PLAGUE

Researchers from the UK and India, including a team from the Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), **has jointly developed a 'smart' vaccine** which has the potential to help eradicate goat plague. The disease causes losses of billions of dollars a year. Goat plague, or peste des petits ruminants (PPR), is a highly contagious viral disease that afflicts goats and sheep in many parts of the country. The disease kills small ruminants in large numbers unless they are vaccinated.

What

1. According to the UK Research and Innovation (UKRI), PPR costs farmers anywhere between \$1.4-2.1 billion a year globally. Apart from India, goat plague is prevalent in many African countries, West Asia, China and Mongolia.
2. Goat plague was a big problem in India till recently. But now we have been able to control it to a large extent using conventional live vaccines developed by us as well as the Indian Veterinary Research Institute (IVRI) under the Indian Council of Agricultural Research.
3. Under a joint collaborative research programme **supported by UKRI's** Biotechnology and Biological Sciences Research Council (BBSRC) and **India's** Department of Biotechnology, scientists from both countries joined hands to develop a smart vaccine for goat plague, which the Bill and Melinda Gates Foundation identified as one of the global grand challenges to be tackled.
4. While the UK scientists were from Pirbright Institute, their Indian collaborators were from four different institutions including TANUVAS and IVRI.
5. The major contribution from British scientists was providing a template for developing a smart vaccine, which is also called DIVA vaccine.
6. It is one of the first smart PPR vaccines that help distinguish between animals which are vaccinated and infected, which is impossible with conventional live or killed virus vaccines.
7. The DIVA vaccine is ready for use, but it has to go through regulations. We have tied up with the Hyderabad-based Vivimed Labs. Now it is for the company to take it up through the regulatory pathway

ISS MICROBES

Scientists have identified strains of the bacterium *Enterobacter* on the International Space Station (ISS), which they say should be studied for potential health implications for astronauts on future missions. Researchers at **NASA's Jet Propulsion Laboratory (JPL)** and California Institute of Technology in the US investigated five strains of *Enterobacter* that were isolated from the space toilet and the exercise platform on the ISS in March 2015.

What

1. To identify the species of *Enterobacter* collected on the ISS and to show in detail the genetic make-up of the individual strains, the researchers compared the ISS strains to all publicly available genomes of 1,291 *Enterobacter* strains collected on Earth.
2. To show which species of the bacteria were present on the ISS, we used various methods to characterise their genomes in detail, said Kasthuri Venkateswaran from JPL.

3. We revealed that genomes of the five ISS Enterobacter strains were genetically most similar to three strains newly found on Earth, said Venkateswaran, corresponding author of the study published in the journal BMC Microbiology.
4. These three strains belonged to one species of the bacteria, called Enterobacter bugandensis, which had been found to cause disease in neonates and a compromised patient, who were admitted to three different hospitals.
5. Comparing the genomes of the five ISS strains to the three clinical Earth strains allowed the researchers to get a better understanding of whether the ISS strains showed characteristics of antimicrobial resistance, if they had gene profiles similar to those found in known multi-drug resistant bacteria.
6. Given the multi-drug resistance results for these ISS E bugandensis genomes and the increased chance of pathogenicity we have identified, these species potentially pose important health considerations for future missions.
7. The researchers found that the ISS isolates had similar antimicrobial resistance patterns to the three clinical strains found on Earth and that they included 112 genes involved in virulence, disease and defence.
8. While the ISS E bugandensis strains were not pathogenic to humans, the researchers predicted via computer analyses, a 79 per cent probability that they may potentially cause disease. However, analyses in living organisms should be carried out to confirm this.

WORLD'S FIRST GENETICALLY EDITED BABIES

A Chinese researcher claims that he helped make the world's first genetically edited babies — twin girls born this month **who's DNA he said he altered with a powerful new tool** capable of rewriting the very blueprint of life. Editing sperm, eggs or embryos is different — the changes can be inherited. **In the US, it's not allowed except for lab research.**

What

1. A US scientist said he took part in the work in China, but this kind of gene editing is banned in the United States because the DNA changes can pass to future generations and it risks harming other genes.
2. **Many mainstream scientists think it's too unsafe to try, and some** denounced the Chinese report as human experimentation.
3. The researcher, He Jiankui of Shenzhen, said he altered embryos for seven couples during fertility treatments, with one pregnancy resulting thus far.
4. He said his goal was not to cure or prevent an inherited disease, but to try to bestow a trait that few people naturally have — an ability to resist possible future infection with HIV, the AIDS virus.
5. The parents involved declined to be identified or interviewed, and he would not say where they live or where the work was done.
6. He revealed it 26 November 2018 in Hong Kong to one of the organizers of an international conference on gene editing that is set to begin 27 November 2018.
7. However, **one famed geneticist, Harvard University's George Church,** defended attempting gene editing for HIV, which he called “a major and growing public health threat.”
8. The researcher, He Jiankui of Shenzhen, said he altered embryos for seven couples during fertility treatments, with one pregnancy resulting thus far.
9. **It's only** recently been tried in adults to treat deadly diseases, and the changes are confined to that person. Editing sperm, eggs or embryos is different — the changes can be inherited.
10. **In the US, it's not allowed except for lab research.** China outlaws human cloning but not specifically gene editing. He Jiankui studied at Rice and Stanford universities in the US before opening a lab at Southern University of Science and Technology of China in Shenzhen, where he also has two genetics companies.

11. The US scientist who worked with him on this project after He returned to China was physics and bio engineering professor Michael Deem, who was his adviser at Rice.
12. All the men in the project had HIV and all the women did not, but the gene editing was not aimed at preventing the small risk of transmission.
13. The fathers had their infections deeply suppressed by standard HIV medicines and there are simple ways to keep them from infecting offspring. Instead, the appeal was to offer couples affected by HIV a chance to have a child that might be protected from a similar fate.
14. A single sperm was placed into a single egg to create an embryo. Then the gene editing tool was used.
15. He said the gene editing occurred during IVF, or lab dish fertilization. First, **sperm was "washed" to separate it from semen, the fluid where HIV can lurk.**
16. A single sperm was placed into a single egg to create an embryo. Then the gene editing tool was used. When the embryos were 3 to 5 days old, a few cells were removed and checked for editing.

SIX NEW ANTIBODIES DEVELOPED

Researchers, including one of Indian origin, have developed six Zika virus antibodies which may help diagnose as well as treat the mosquito-borne disease that has infected over 1.5 million people worldwide. The antibodies "may have the dual utility as diagnostics capable of recognising Zika virus subtypes and may be further developed to treat Zika virus infection.

What

1. Zika is spread mainly by mosquitos. Most infected people experience no symptoms or mild symptoms such as a rash, mild fever and red eyes.
2. However, infection during pregnancy can cause miscarriages, stillbirths and severe birth defects such as microcephaly, said Adinarayana Kunamneni, a research assistant professor at Loyola University.
3. Antibodies could be key to diagnosing and treating the Zika virus. An antibody is a Y-shaped protein made by the immune system.
4. When a virus, bacterium or other pathogen invades the body, antibodies bind to antigens associated with the bug, marking it for the immune system to destroy.
5. Using a technology called ribosome display; researchers generated six synthetic antibodies that bind to the Zika virus.
6. The antibodies, which are inexpensive to produce, could be used in a simple filter paper test to detect the Zika virus in the field.
7. In the event the virus mutates, it's likely at least one of the antibodies still would match the virus and thus could still be used in diagnosis and treatment.
8. An antibody-based test for the Zika virus likely would be cheap and fast, and thus could easily be used to monitor mosquito populations for Zika.
9. If the virus is present in an area, officials could respond by stepping up mosquito-abatement efforts.
10. They also could educate the public -- especially women who are pregnant or could become pregnant -- on how to avoid mosquito bites by applying mosquito repellent, wearing long pants and long-sleeve shirts, eliminating standing water, etc.
11. The antibodies are "neutralising," meaning that when they bind to the Zika virus, they prevent the virus from infecting cells.
12. This effectively renders the virus harmless. The neutralising property potentially could lead to the development of a drug that an at-risk woman could take to prevent the virus from infecting her foetus

MISCELLANEOUS

MOTHER CAUVERY STATUE

The Karnataka government will construct a 125-foot tall statue of **'Mother Cauvery'** at the Krishna Raja Sagar reservoir in Mandya district, about 90 km from Bengaluru. The statue – **a tribute to the river that is often called 'mother'** – is expected to be built at a cost of Rs 1,200 crore and spread across 400 acres. The entire project, which is likely to be completed within the next two years, will include the statue, a museum complex, two **glass houses measuring around 360 feet that will give a bird's eye view of the reservoir**, a bandstand, an indoor stadium and replicas of historical monuments.

The Significance of Cauvery

1. The Cauvery river, which originates in the foothills of the Western Ghats in **Karnataka's Kodagu**, is the third largest after the Godavari and Krishna in south India.
2. The **'Dakshina Ganga' or the Ganges of the south** has been the economic backbone of Karnataka and Tamil Nadu, the two states through which it flows. It is celebrated in the music and literature of both states.

The Cauvery dispute

1. Karnataka and Tamil Nadu has been at loggerheads over the sharing of Cauvery water.
2. In May, the Supreme Court delivered its verdict in the decades-old Cauvery water dispute, allocating more water to the state of Karnataka.
3. The apex court ordered the Karnataka government to release 177.25 tmcft of Cauvery water to Tamil Nadu from its inter-state Billigundlu dam.
4. The judgment clarified that Karnataka will now have an enhanced share of 14.75 tmcft water per year, while Tamil Nadu will get 404.25 tmcft, which will be 14.75 tmcft less than what was allotted by the tribunal in 2007.
5. Earlier, in accordance with the 2007 award of the Cauvery Water Dispute Tribunal (CWDT), Karnataka had a share of 270 tmcft of Cauvery water. This will now increase to 284.75 tmcft.

WESTERN PERIPHERAL EXPRESSWAY

Nine years after its original deadline, PM Narendra Modi inaugurates the full-length Kundli-Manesar-Palwal (KMP) expressway on 19 November 2018. Together with the Eastern Periphery Expressway, which opened in May, KMP (Western Peripheral Expressway) completes the largest Ring Road around Delhi and is expected to take 50,000 vehicles per day off the city's roads.

Know about KMP

1. It took 15 long years to complete this project
2. Its original completion target was 2009 and since then it has missed multiple deadlines.
3. A sum of Rs 6,400 crore has been spent on the expressway project and 3,846 acres of land was acquired at a cost of Rs 2,788 crore.
4. The width of the median at this stretch has been kept at 8 km. Similarly, the Manesar Palwal stretch is over 52 km long and it has 32 underpasses/agricultural vehicular underpass, three intersections and four toll plazas.
5. The design speed of this expressway is 120 kmph for light vehicles and 100 kmph for heavy ones.
6. Two rows of shrubs will be planted in the median. Apart from this, two rows, on each side, of trees like neem, arjun, and sheesham would be planted near the extreme end of row.

7. Drip irrigation system would be adopted for the median plantation to conserve and save water. Fountains, historical and cultural monuments have been made at various locations to improve the aesthetic look of the expressway.
8. One ambulance, one crane and one police patrol vehicle with a helpline number have been stationed in every 20 km for speedy response in case of accidents or emergencies.

A brief timeline

1. Delhi Western Peripheral Expressway was proposed in 2003.
2. The project was awarded to KMP Expressways Ltd. a Special Purpose Vehicle of DS Constructions, Madhucon Projects and Apollo Enterprises in 2005. The initial total cost of the project was Rs. 1915 crore.
3. According to concession agreement signed between HSIIDC and KMP expressways in Jan 2005, the project was set to be completed in June 2009.
4. The project missed its initial deadline, availed multiple extensions.
5. In June 2012, in a multi-party meeting between Haryana and Delhi governments as well as the developer a revised deadline of May 2013 was fixed.
6. Due to delay in construction, HSIIDC decided to penalise the company in April 2012 after which the dispute went to courts and the project was stalled.
7. Later the lenders led by IDBI bank, served the concessionaire KMP Expressways with a substitution notice due to its continued defaults in the performance of its financial and other obligations.
8. Subsequently, the then Congress-led government of the state which had also awarded the contract decided to terminate the contract and pay KMP Expressways and lenders Rs 1,300 crore as a termination payment.
9. In 2014, the project was revived. It was also decided to upgrade the expressway to a six-lane expressway.
10. On April 5, 2016, the 53-km stretch between Manesar and Palwal was opened for public use.
11. November 19, 2018: Expressway being opened.

WORLD MALARIA REPORT 2018

India and 15 other countries in sub-Saharan Africa accounted for almost 80 per cent of the malaria cases reported globally last year, according to a WHO report which notes that a whopping 1.25 billion people in India were at the risk of contracting the mosquito-borne disease. The **World Health Organization's (WHO) 2018** World malaria report, however, in an encouraging note said that India was the only country to report progress in reducing its malaria cases in 2017 as compared with 2016. It said five countries to account for nearly half of all malaria cases worldwide were Nigeria (25 per cent), Democratic Republic of the Congo (11 per cent), Mozambique (5 per cent), India and Uganda (4 per cent) both.

What

1. In all, 15 countries in sub-Saharan Africa and India carried almost 80 per cent of the global malaria burden.
2. In India, 1.25 billion people in the population were at risk of malaria, the report said. It said that targets to reduce global rates of infections and deaths from malaria were not being met.
3. The study reveals that while new cases fell steadily up until 2016, the number rose from 217 to 219 million in 2017: the targets set by the WHO Global technical strategy for malaria 2016–2030 call for a drop in malaria case incidence and death rates of at least 40 per cent by 2020.
4. The 10 highest burden countries in Africa reported increases in cases of malaria in 2017 compared with 2016.
5. Of these, Nigeria, Madagascar and the Democratic Republic of the Congo had the highest estimated increases, all greater than half a million cases.

6. In contrast, India reported three million fewer cases in the same period, a 24 decrease compared with 2016. However, cases in the African countries rose by 3.5 million compared with the previous year.
7. Nearly 80 per cent of global malaria deaths in 2017 were concentrated in 17 countries in the WHO African Region and India, the report said.
8. Seven of these countries accounted for 53 per cent of all global malaria deaths: Nigeria (19 per cent), Democratic Republic of the Congo (11 per cent), Burkina Faso (6 per cent), Tanzania (5 per cent), Sierra Leone (4 per cent), Niger (4 per cent) and India (4 per cent).
9. **The report noted that while India “had made impressive gains and was on track” to meet the Global technical strategy for malaria 2016–2030 targets**, it still accounted for 4 per cent of the global burden of malaria morbidity and 52 per cent of deaths outside of the WHO African Region.
10. India was among the countries that detected high treatment failure rates and responded by changing their treatment policies, it said. The report added that India and Indonesia were on track to achieve a 20–40 per cent reduction in case incidence by 2020.
11. The WHO, the main United Nations health agency, and its partners have launched a country-led **‘high burden to high impact’ response plan** – to coincide with the release of the report – with the aim of scaling up prevention, treatment and investment to protect vulnerable people, and get reductions in malaria deaths and disease back on track.
12. The plan builds on the principle that no one should die from a disease that can be easily prevented and diagnosed, and that is entirely curable with available treatments.
13. The world faces a new reality: as progress stagnates, we are at risk of squandering years of toil, investment and success in reducing the number of people suffering from the disease, WHO Director General Tedros Adhanom Ghebreyesus said.
14. A positive note was struck in Paraguay, which has this year been certified as malaria free, the first country in the Americas to receive this status in 45 years.
15. The number of countries nearing elimination has now grown from 37 to 46, and three countries – Algeria, Argentina and Uzbekistan – have requested official malaria-free certification from the WHO.
16. Domestic financing **has been identified as key to the success of the WHO’s malaria strategy**.

VACATION DEPRIVATION REPORT 2018

Indians are the most vacation-deprived in the world and 41 per cent of them have not taken a vacation in the past six months as they could not get time off work, according to a report. Vacation deprivation is on the rise and 75 per cent of Indian feel vacation deprived which is the highest in the world followed by South Korea (72 per cent) and Hong Kong (69 per cent), according to the annual Expedia 2018 Vacation Deprivation Report.

What

1. Indian workers also do not take all vacation days and rank five to leave their vacations unused after Japan, Italy, Australia, New Zealand.
2. This research for the report was conducted on behalf of Expedia by Northstar Research Partners, in 19 countries among 11,144 employed adults aged 18 and over.
3. The survey was conducted online from September 19-28, 2018 across North America, Europe, South America and Asia-Pacific.
4. The study also reflects that 18 per cent Indians feel that those who are successful at their job don’t take vacation days.
5. For 64 per cent of Indians the impending workload after they come back from vacation is an important factor in deciding the length of their holiday.

6. 17 per cent of Indians have not taken any leave from past one year.
7. These figures throw light on various factors resulting in making India the most vacation deprived nation in the world. However, 55 per cent Indians feel that vacation deprivation affect their productivity.
8. Though the feeling of vacation deprivation among Indians have gone up, their guilt associated with taking a vacation has gone down by 9 per cent to 63 per cent this year compared to the previous year.
9. One of the leading reasons people don't use their vacation time is because they're saving them for a big trip.

ALLIED AND HEALTHCARE COUNCIL OF INDIA

The Union Cabinet chaired by Prime Minister Shri Narendra Modi has approved the establishment of an Allied and Healthcare Council of India and corresponding State Allied and Healthcare Councils which will play the role of standard-setters and facilitators for professions of Allied and Healthcare. It will provide employment opportunities to millions of youth in the country and will help standardize allied healthcare.

What

1. The Central and State allied and Healthcare Councils will include 15 major professional categories including 53 professions in Allied and Healthcare streams.
2. The Professional Advisory Bodies under Central and State Councils will examine issues in detail and provide recommendations relating to specific recognized categories.
3. The Allied and Healthcare Professionals (A&HPs) constitute an important element of the health human resource network, and skilled and efficient Allied and Healthcare Professionals (A&HPs) can reduce the cost of care and dramatically improve the accessibility to quality driven healthcare services.
4. This legislation will bring all existing allied and healthcare professionals on board within a few years from the date of establishment of the Council.
5. This will provide an opportunity to create qualified, highly skilled and competent manpower in healthcare and enable professionalism of the allied and healthcare workforce.
6. This will pave the way for high quality multi-disciplinary care in line with the vision of Ayushman Bharat.

GLOBAL CO2 LEVELS HIT NEW RECORD

The levels of greenhouse gases in the atmosphere, the main driver of climate change, have hit a new record high, the UN said on 22 November 2018, warning that the time to act was running out. Without rapid cuts in CO2 and other greenhouse gases, climate change will have increasingly destructive and irreversible impacts on life on Earth, the head of the World Meteorological Organization Petteri Taalas said.

What

1. The Greenhouse Gas Bulletin, **the UN weather agency's annual flagship report**, tracks the content of dangerous gases in the atmosphere in the post-industrial era (since 1750).
2. **This year's report, which covers data for 2017, puts the concentration of CO2 in the atmosphere at 405.5 parts per million (ppm).**
3. That is up from 403.3 ppm in 2016 and 400.1 ppm in 2015.
4. The last time the Earth experienced a comparable concentration of CO2 was 3-5 million years ago, when the temperature was 2-3°C warmer.
5. Researchers have reliable estimates of CO2 concentrations rates going back 800,000 years using air bubbles preserved in ice in places like Greenland and Antarctica.
6. But by studying fossilised material the WMO also has rough CO2 estimates going back up to three to five million years.

7. In addition to CO₂, the UN agency also highlighted rising levels of methane, nitrous oxide and another powerful ozone depleting gas known as CFC-11.

FIRST-EVER STUDY ON CANNABIS

At a one-day conference on "Cannabis R&D in India" on 23 November 2018, Union Minister Dr Jitendra Singh said the government had granted a license to IIIM Jammu for the cultivation of cannabis for medical research and drug development. Canada becomes the first industrialised nation to legalise cannabis.

What

1. Cannabidiol (CBD) has therapeutic properties for conditions like diabetic neuropathy, cancer and in children with epilepsy and sickle cell anaemia.
2. Indian Institute of Integrated Medicine, Jammu, will conduct a landmark study on cannabis, possibly the first of its kind, to explore its potential clinical benefits.
3. At a one-day conference on "Cannabis R&D in India" on 23 Nov 2018, Union Minister Dr Jitendra Singh said the government had granted a license to IIIM Jammu for the cultivation of cannabis for medical research and drug development. Cannabidiol (CBD) has therapeutic properties for conditions like diabetic neuropathy, cancer and in children with epilepsy and sickle cell anaemia.
4. CSIR-IIIM Jammu has been given the responsibility of undertaking this study because the institute specialises in herbal and medicinal plants and has a legacy of undertaking pioneering research in the field ever since the time of its founding father Sir Ram Nath Chopra.
5. The clinical trials of the drug would be done in collaboration with Tata Memorial Cancer Centre, Mumbai, which functions under the aegis of the Department of Atomic Energy, which comes under his ministry.
6. Pointing out that there was a very thin line between the use and abuse of a drug, Singh said that while therapeutic uses of the drug would come to the rescue of needy patients, its misuse would be prevented and regulated through appropriate legislation and law enforcement agencies.

MARY KOM WINS HISTORIC GOLD

M C Mary Kom on 24 November 2018 became the most successful boxer in the history of Women's World Championships by winning her sixth gold medal with an unanimous 5-0 result over Ukraine's Hanna Okhota at the KD Jadhav Indoor Stadium in New Delhi. The 35-year-old Mary Kom beat her opponent in the 48kg category without breaking a sweat. She now has an incredible six gold and one silver medal in the tournament.

What

1. With this gold, 'Magnificent Mary' also matched Cuban men's legend Felix Savon as the joint most successful pugilist (men and women) in the World Championships history.
2. The last time she won the top prize in the showpiece was in 2010, in Bridgetown, Barbados.
3. Before this World Championships, Mary Kom was tied with Ireland's Katie Taylor (five gold and a bronze medal) on the number of medals won by a woman. Taylor now plies her trade in the professional circuit.
4. The feisty Manipuri, a mother of three, won silver in the inaugural edition in 2001 and then went on to win a gold each in the next five consecutive editions -- 2002, 2005, 2006, 2008 and 2010.
5. Savon, who also won three Olympic gold medals during his illustrious career, won six gold and one silver in heavyweight in the World Championships between 1986 and 1989.

NDMA CONDUCTS TRAINING PROGRAMME FOR CBRN

A basic training programme aimed at enhancing the preparedness of Airport Emergency Handlers (AEHs) to respond to CBRN emergencies began at the Trivandrum International Airport in Thiruvananthapuram, Kerala. The five-day training programme is being conducted by the National Disaster Management Authority (NDMA). CBRN emergencies pertain to threats emanating from the handling of Chemical, Biological, Radiological and Nuclear material (CBRN).

What

1. The training programme is being conducted in collaboration with the Airport Authority of India (AAI), Institute of Nuclear Medicine & Allied Sciences (INMAS) and National Disaster Response Force (NDRF).
2. Handling CBRN emergencies need specialised skills and efforts. In fact, even a small CBRN related event can cause panic among people at the airports. This training programme will improve the CBRN safety at our airports by enabling the AEHs to handle any CBRN emergency.
3. The programme consists of lectures as well as field training, including live demonstrations of detection and decontamination including use of Personal Protective Equipment (PPE).
4. Besides equipping the AEHs to handle CBRN emergencies, the training programme will also enable them to provide medical first aid and initial psycho-social support.
5. Experts from stakeholder departments such as Department of Atomic Energy (DAE), INMAS, NDMA, NDRF, Bhabha Atomic Research Centre (BARC) and Kerala State Disaster Management Authority (KSDMA) will train the participants.
6. A total of 50 participants representing various agencies responsible for operation and maintenance of the airport will be trained on various aspects of CBRN emergencies. Another 150 working level staff will be sensitized on the subject in a half day module. A mock exercise will also be carried out during the training programme.
7. This is the eleventh in a series of such programmes being conducted at airports across the country to enable AEHs to respond suitably till the arrival of specialised response teams.
8. Ten batches have already been trained - one each in Chennai, Kolkata, Mumbai, Varanasi, Patna, Ahmedabad, Hyderabad, Chandigarh, Raipur and Bengaluru.

ETHANOL EXTRACTION ALLOWS FOR BLENDING FROM FOODGRAINS

The Centre has extended the ambit of the Ethanol Blended Petrol (EBP) programme to extract the fuel from surplus quantities of maize, jawar, bajra and fruit/vegetable waste. This decision was taken, and will be applicable for procurement for the ethanol supply year 2018-19. Till now, only excess sugarcane production was allowed to be converted into ethanol for procurement under the fuel blending programme.

What

1. The decision will benefit farmers by enabling them to make additional money from surplus production and broaden the sources for producing ethanol for the EBP programme.
2. The National Policy on Biofuels 2018 has empowered the National Biofuel Coordination Committee (NBCC) to allow conversion of surplus quantities of foodgrains for production of ethanol during an agriculture crop year when there is projected oversupply of foodgrains as anticipated by the Ministry of Agriculture and Farmers Welfare.
3. According to the Ministry of Petroleum and Natural Gas, the Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW), under the Ministry of Agriculture and Farmers Welfare, has provided the projection of surplus quantities of foodgrains for production of ethanol under the EBP programme for the ethanol supply year 2018-2019 (December 1, 2018 to November 30, 2019).

4. The matter was taken up during the first meeting of the NBCC on November 14, which has approved the procurement of ethanol produced from surplus quantities of maize, jawar and bajra, as projected by the Ministry of Agriculture and Farmers Welfare, for the EBP programme for the ethanol supply year 2018-2019.
5. The NBCC has also approved the proposal to produce ethanol from other feedstock such as fruit and vegetable wastes for the EBP programme.
6. Under the EBP programme, the Centre has asked the oil marketing companies (OMCs) to target 10 per cent blending of ethanol with petrol by 2022.
7. However, there is a major shortfall in the availability of ethanol as sugar mills **currently tap only 'C-heavy' molasses for ethanol production.**
8. According to data compiled by the Indian Sugar Mills Association, the nationwide average for ethanol blending stood at 4.02 per cent as on October 1.
9. The government earlier this year came out with a modified biofuels policy which **incentivised sugar mills that tap 'B-heavy' molasses and cane juice** for producing ethanol.
10. This, the government hoped, would also address the issue of the glut in sugar production in the country in bumper sugarcane production years.

HIGH-END SKILL DEVELOPMENT CENTRE

India's premier National Research Laboratory CSIR-Institute of Microbial Technology (CSIR-IMTECH) announced a new partnership with Merck, a leading German science and Technology Company, to establish a 'High End Skill Development Centre' in CSIR-IMTECH, Chandigarh. Equipped with the next generation technologies, like gene editing & single-molecule biomarker detection, the centre will help accelerate healthcare research and train Indian students and researchers in latest life science technologies and make them industry ready.

What

1. Under the Memorandum of Understanding, Merck in collaboration with CSIR-IMTECH will use their expertise in Life Science to build a centre which will help researchers and students develop advanced competencies and analytical skills required for life science research.
2. This will be a first of its kind, Academia-Industry-led, **'High End Skill Development Centre' laboratory in Chandigarh** that has been established to augment Government of India's initiative for skilling India in the area of Life Science.
3. **This 'High End Skill Development Centre' will enrich skills** by conducting workshops, trainings and seminar series on cutting edges life science processes, tools and techniques.
4. The centre will facilitate hands-on experience to learning and real time sample analysis. The proposed state of the art Centre will integrate Work-based and Research-based learning by providing next generation lab set-up for carrying out real time sample analysis and learning workshops for selected group of technologies in the domain of Life Sciences.
5. This collaboration resonates with the Government of **India's mission of 'Skill India' and would be a new benchmark for up scaling employability skills** for graduates and post graduates who are aspiring to make a career in the life science sector.
6. Expanding on the contours of this MoU, the Director of CSIR-IMTECH, Dr. Anil Koul said that collaboration with leading companies like Merck will bring a paradigm shift in the way knowledge alliances like these are created in public-private partnership mode.
7. The Centre will have skill development-oriented curriculum and real-time exposure to the cutting-edge technologies which will be further strengthened after assessing initial outcomes.

8. This High-End Skill Development Centre will function on the principle of “no-profit, no-loss” basis and has been primarily created to augment Government of India’s initiative for building skills in the area of Life Science.

AWARDS ON INTERNATIONAL DAY OF PERSONS WITH DISABILITIES

On the occasion of International Day of Persons with Disabilities on 3rd December, 2018, the Vice President of India Shri M. Venkiah Naidu will confer the National Awards on Individuals, Institutions, Organizations, State/District etc for their outstanding achievements and work done towards empowerment of Persons with Disabilities (PwDs) at a function in Vigyan Bhawan, New Delhi. A total of 56 individuals and 16 institutions will be awarded on the occasion.

National Awards will be given under fourteen (14) broad categories, which are as under :-

1. Best Employee/Self-Employed Person with Disabilities;
2. Best Employers and Placement Officers and/or Agencies;
3. Best Individual and Institution, working for the cause of Empowerment of Persons with Disabilities;
4. Role Model;
5. Best Applied Research or Innovation or Product, aimed at improving the life of Persons with Disabilities;
6. Outstanding Work in creation of barrier-free environment for Persons with Disabilities;
7. Best District in providing rehabilitation services;
8. Best State Channelizing Agency of the National Handicapped Finance and Development Corporation (NHFDC);
9. Outstanding Creative Adult Persons with Disabilities;
10. Best Creative Child with Disabilities;
11. Best Braille Press;
12. Best Accessible Website;
13. Best State (i) in promoting Empowerment of Persons with Disabilities; & (ii) for implementation of Accessible India Campaign.
14. Best Sports person with disability.

Flashback

1. Till 2017, the Award Scheme was governed under the National Awards Rules, 2013 which provided 7 categories of disabilities as per the Persons with Disabilities Act, 1995.
2. However, with the coming into force of the Rights of Persons with Disabilities Act, 2016 w.e.f. 19th April 2017, the number of specified disabilities increased from 7 to 21 under the new Law.
3. Accordingly, all the 21 disabilities have been included under the National Award Guidelines which have been notified in the Extra-ordinary Gazette of India dated 2nd August, 2018.