

My Notes....

NATIONAL

NEW DELHI DECLARATION OF COP14

A UN convention to combat desertification held from 2 September to 13 September 2019 at Greater Noida New Delhi. Around 196 countries and 94 environment ministers took part in the mega event, which is hosted by India. India took over the Presidency of the COP from China. The Conference was **adopted** a 'New Delhi Declaration' by countries, identifying multiple measures to restore degraded land globally, on the concluding day of the UN conference (COP14) on combating desertification.

What

- The countries will, however, have to mobilise a huge sum of \$300 billion to step up the restoration exercise - a task which may not be possible without involving small and medium private enterprises for commercially viable sustainable land management.
- There is need to incentivise investments in land restoration, said Ibrahim Thiaw, executive secretary of the UN Convention to Combat Desertification (UNCCD), while listing out his four takeaways from the COP14.
- Investing in land to bring carbon back to the soil, **countries' seriousness** towards the issue of drought preparedness and **putting "people first"** to make the task of land restoration successful are the other three takeaways of the UNCCD chief.
- Since the countries during the conference discussed the issue of land tenure security in the context of land restoration, **India's environment minister Prakash Javadekar insisted on his country's commitment to give land titles to all "legitimate" forest dwellers.**
- The government believes and is committed to give land titles to all legitimate forest dwellers. In the strategy for forest development, tribals and dwellers are a part of it as they live and protect the forest.
- The **12-point 'New Delhi Declaration'** took note of **India's** seven initiatives undertaken for sustainable use of land. These initiatives include central schemes like national afforestation programme, Har Khet Ko Pani (water for irrigation to every farm), More Crop Per Drop (water use efficiency in agriculture), rural employment guarantee and Soil Health Cards among others.
- The outcome of the 12-day COP14 will get traction in the upcoming UN climate action **summit in New York on September 23 as it emphasised on "land-based solutions for climate action and biodiversity conservation and the mutually supportive implementation of the three Rio conventions.**

LAND UNDER THREAT	
INDIA	GLOBAL
Total geographical area 328.7 million hectares (MHa)	Total land area 13.2 billion hectares (BHa)
Land under degradation 96.4MHa (It's 29.3% of India's total geographical area)	Land under degradation 4BHa
> India pledges restoration of degraded and deforested land	Global pledges for restoration of degraded and deforested land
By 2020: 13MHa	By 2020: 150MHa
By 2030: Additional 8MHa (Total 21 MHa)	By 2030: Additional 200 MHa (Total 350 MHa)
CAUSES OF DESERTIFICATION AND LAND DEGRADATION: Over-exploitation (farm practices using excessive chemical fertilisers and pesticides), over-grazing, deforestation and poor irrigation practices	SOLUTIONS: Afforestation, water resource management and sustainable farm practices

8. The three conventions - climate change, land and biodiversity - originated as an outcome of the 1992 Earth Summit at Rio de Janeiro.

Delhi Declaration COP 14

1. Promoting projects to prevent land degradation at local, national and regional levels
2. Promote projects to prevent drought and erosion, and to make barren land cultivable
3. Plan to prevent drought, so that land degradation can be prevented
4. Creating green jobs by promoting technology and investment in collaboration with all stakeholders
5. Need to work towards preventing land degradation taking forward Paris Agreement
6. Implementing UN Ecosystem Restoration (2021-2030) program on behalf of all countries
7. To further programs initiated by African countries to prevent land degradation
8. Peace Forest Initiative benefits accepted. Appeal to work together to prevent land from becoming barren
9. Appeal to make local governments more accountable to prevent land degradation and make right to land transparent
10. To make local governments more accountable for maintaining natural resources and ecosystem
11. COP-14 member countries appreciate India's efforts
12. PM Modi's efforts to achieve the major goal of land restoration and increase south-south cooperation were praised

About the UNCCD

1. Established in 1994, the United Nations Convention to Combat Desertification (UNCCD) is the sole legally binding international agreement linking environment and development to sustainable land management.
2. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.
3. The new UNCCD 2018-2030 Strategic Framework is the most comprehensive global commitment to achieve Land Degradation Neutrality (LDN) in order to restore the productivity of vast expanses of degraded land, improve the livelihoods of more than 1.3 billion people, and reduce the impacts of drought on vulnerable populations to build.

VIKRAM GOES SILENT

ISRO has lost contact with Chandrayaan 2's lander Vikram and rover Pragyan on 7 September 2019. Earlier in the day, ground stations lost contact with the lander during its powered descent to the lunar surface minutes before the planned touch-down. "Vikram lander descent was as planned and normal performance was observed up to an altitude of 2.1 km. Subsequently, the communications from the lander to ground stations was lost, ISRO chief K. Sivan said.

What

1. The 1,471-kg lander of Chandrayaan 2 — the first Indian mission to explore the lunar terrain with home-grown technology — is named Vikram after Dr. Vikram A. Sarabhai, the father of the Indian space programme.
2. The lander was designed to execute a soft-landing and to function for one lunar day, which is equivalent to about 14 earth days.

3. The 27-**kg Pragyaa (which translates to 'wisdom' in Sanskrit) is a six**-wheeled robotic vehicle. It is designed to travel up to 500 metres from the landing spot and leverage solar energy for its functioning.
4. The lander carried three scientific payloads to conduct surface and subsurface science experiments, while the rover carried two payloads to enhance our understanding of the lunar surface.
5. The mission life of the orbiter will be one year while that of the rover was to be one lunar day which is equal to 14 earth days.
6. The Vikram Lander, carrying the Pragyaa Rover, had separated from the orbiter on September 3. The orbiter was functioning normally.
7. The orbiter, which weighs nearly 2,379 kg, is expected to go around the moon for one year. Its payloads will conduct remote-sensing observations from a 100 km orbit.
8. The Orbiter is tasked with taking pictures of the moon and relaying them back to ISRO to help scan and map the lunar surface for further experiments.
9. The Vikram Lander lost contact 13 minutes after its descent. It failed to bring down its speed from around 6,048 km per hour to about 7 km per hour.

What was Chandrayaan-1?

1. Launched 11 years ago on October 22, 2008, Chandrayaan-1 was India's **first** Lunar mission that took off from the Satish Dhawan Space Centre SHAR, Sriharikota in Andhra Pradesh.
2. It made more than 3,400 orbits around the moon and was operational for at least 312 days until August 29, 2009. As per ISRO, the Chandrayaan-1 lift-off mass was around 1,380 kg.
3. The Chandrayaan-1 gave a major fillip to the Indian space program as it was the **country's indigenously** developed technology to explore the Moon.
4. It was launched aboard PSLV-C11 launch vehicle that successfully placed the spacecraft inside the lunar orbit on November 8, 2008.
5. A huge victory was achieved on November 14, 2008, when the MIP (Moon Impact Probe) was separated and it struck the lunar South Pole in a controlled manner. And with that, India became the fourth country in the world to hoist its national flag on lunar surface.

What happened to Chandrayaan-1?

1. After almost a year of struggling with technical issues and an eventual contact failure on August 29, 2009, the Indian Space Research Organisation officially declared the Chandrayaan-1 mission over.
2. The spacecraft operated for less than two years: 312 days as opposed to two years. However, the Chandrayaan-1 was successful in achieving at least 95 per cent of its objectives.
3. One of its biggest discovery was to find traces of water on the Moon, which was in itself a path-breaking achievement in international space science.
4. This discovery gave the ISRO renewed interest in pursuing the Chandrayaan-2 for the mission to Moon. Besides this, the spacecraft also found water ice in the North Polar Region of the Moon as well as detected Magnesium, Aluminium and Silicon on its surface.

INDIA TO CHAIR A-WEB

The fourth general assembly of the Association of World Election Bodies (A-WEB) was hosted by the Election Commission of India in Bengaluru on September 3. On the same day, India took over as the chair of A-WEB for 2019-21. Chief election commissioner Sunil Arora was presided over the general assembly. The deliberations

included discussions on challenges and furthering partnership among election management bodies (EMB) and programmes have undertaken by A-WEB in 2019-20.

What

1. Over 120 participants from 50 countries participated in various A-WEB events, from September 2 to 4. This is said to be the largest congregation of EMB delegates in India.
2. ECI has been closely associated with A-WEB since 2011-12 and has been an executive board member.
3. ‘One nation one **election’ issue will be** the focus at the assembly, many countries are striving to do that and many have already done it. These things which will be discussed, but no certain decision is taken in one day. It will be a progressive step if all discuss it.
4. Pointing out that ECI is one of the founders of A-WEB, its secretary-general Yong-Hi Kim said **the organisation is** “like the United Nations in the election field, for the world”.
5. On September 4, an international conference on **‘Initiatives and** challenges of social media and information technology in elections’ has been organised.
6. Representatives from 11 countries — Benin, Bhutan, Bosnia-Herzegovina, Cameroon, Malawi, Mauritius, Palestine, Romania, Russia, Sierra Leone and Togo — will make presentations.
7. This issue has to be addressed. Social media is a part of our challenges. A committee was formed in India a year before the recent general election to tackle such challenges.

Flashback

1. The Association of World Election Bodies, **commonly referred to as ‘A-WEB,’** was established on October 14, 2013 in Song-do, South Korea.
2. A-WEB is the first global organization of election management bodies, and the membership currently consists of 97 organizations from 94 countries.
3. **Under the slogan of ‘Democracy to Grow for All Worldwide,’ the A-WEB Secretariat** provides training programs for election officials of member nations and undertakes country programs at the request of member organization, providing support during the election cycle to boost election management capacity.
4. The National Election Commission of the Republic of Korea first proposed the creation of a global election management body institution to the Association of Asian Election Authorities (AAEA) in 2010.
5. After a series of Working Group meetings, a Charter was drawn up and the name A-WEB was chosen upon the suggestion of the Election Commission of India.

COORDINATION COMMITTEE FOR CENSUS

A Coordination committee headed by chief secretary was constituted in Jammu and Kashmir on 4 September for Census-2021, an order issued by the General Administration Department (GAD) stated. It said the chief secretary will be the chairman of the seven-member panel and the director of Census operations its convener.

What

1. Sanction is hereby accorded to the constitution of State Level Census Coordination Committee for successful conduct and timely completion of Decennial

- Population Census-2021, read the order issued by Deputy Secretary to the Government, GAD, Girdhari Lal.
2. Principal secretary of housing and urban development department, principal secretary of planning, development and monitoring department, commissioner secretary of school education department, secretary of department of rural development and Panchayati Raj and secretary of revenue department will be the members of the committee, the order said.
 3. According to the 2011 census, Jammu and Kashmir has a population of 1,25,41,302 of which 66,40,662 are male and 59,00,640 female, while the sex ratio is 889 for each 1,000 male, which is below the national average of 940.
 4. The Literacy rate in Jammu and Kashmir was 67.16 per cent. Of that, male literacy stood at 76.75 per cent while female literacy was 56.43 per cent.

PRADHAN MANTRI KISAN MAAN DHAN YOJANA

Prime Minister Narendra Modi on 12 September 2019 launched 'Pradhan Mantri Kisan Maan Dhan Yojana' (an ambitious pension scheme) for farmers from Ranchi. PM said, 'this scheme will connect Jharkhand with **India & the world.**' Under the 'Pradhan Mantri Kisan Maan dhan Yojana', farmers between 18 and 40 years of age will get Rs 3,000 monthly pension after reaching 60. The scheme has an outlay of Rs 10,774 crore for the next three years. All small and marginal farmers who are currently between 18 to 40 years can apply for the scheme. It is a voluntary and contributory pension scheme for the entry age group of 18 to 40 years.

Salient features

1. It is voluntary and contributory for farmers in the entry age group of 18 to 40 years and a monthly pension of Rs. 3000/- will be provided to them on attaining the age of 60 years.
2. The farmers will have to make a monthly contribution of Rs.55 to Rs.200, depending on their age of entry, in the Pension Fund till they reach the retirement date i.e. the age of 60 years.
3. The Life Insurance Corporation of India (LIC) shall be the Pension Fund Manager and responsible for Pension pay out.
4. In case of death of the farmer before retirement date, the spouse may continue in the scheme by paying the remaining contributions till the remaining age of the deceased farmer.
5. If the spouse does not wish to continue, the total contribution made by the farmer along with interest will be paid to the spouse. If there is no spouse, then total contribution along with interest will be paid to the nominee.
6. If the farmer dies after the retirement date, the spouse will receive 50% of the pension as Family Pension. After the death of both the farmer and the spouse, the accumulated corpus shall be credited back to the Pension Fund.
7. The beneficiaries may opt voluntarily to exit the Scheme after a minimum period of 5 years of regular contributions. On exit, their entire contribution shall be returned by LIC with an interest equivalent to prevailing saving bank rates.
8. The farmers, who are also beneficiaries of PM-Kisan Scheme, will have the option to allow their contribution debited from the benefit of that Scheme directly.

IOE STATUS TO 5 PUBLIC INSTITUTIONS

The HRD Ministry on 5 September 2019, awarded Institution of Eminence (IoE) status to five public institutions including Delhi University, Banaras Hindu University, University of Hyderabad, IIT-Madras and IIT-Kharagpur. The decision was taken following a recommendation made by the University Grants Commission last month on the basis of the advice of an Empowered Expert Committee.

What

1. Orders have been issued to five public institutions including IIT-Madras, IIT-Kharagpur, DU and University of Hyderabad, declaring them as IoEs.

About Institutions of Eminence

1. Institutions of Eminence scheme has been launched in order to implement the commitment of the Government to empower the Higher Educational Institutions and to help them become world class teaching and research institutions, as **announced by the Hon'ble Finance Minister** in his budget speech of 2016.
2. Ten public and ten private institutions are to be identified to emerge as world-class Teaching and Research Institutions.
3. This will enhance affordable access to high quality education for ordinary Indians.

2. Letter of Intent granting the IoE status has been issued to five private universities including Amrita Vidyapeetham, Tamil Nadu; Jamia

Hamdard University; Kalinga Institute of Industrial Technology, Odisha; and Bharti Institute, Mohali.

NO ARYAN DNA TRACED AMONG HARAPPANS

A team of researchers led by Vasant Shinde, a former vice-chancellor of Deccan College in Pune, has claimed that its new study using DNA analysis presents fresh evidence to question the existing knowledge about the Harappan civilisation. Shinde, who **led a study that was recently published in Cell journal, said his team's findings** not only go against the Aryan Invasion Theory but also confirms that agriculture and rearing of animals were practiced by the indigenous people of South Asia.

What

1. We have archaeo-genetic evidence suggesting that there have not been any genetic changes in South Asians for the last 12,000 years.
2. If the Aryans had invaded, their genetic traces would have been detected, which has not happened. This simply means that South Asians, ranging from Afghanistan to West Bengal and Jammu and Kashmir to Andamans, **share common ancestry,**" Shinde said.
3. He said that while the study showed that Harappans interacted with numerous people, mainly for trading purposes, it was the Harappans who could have spread agriculture practice, knowledge of traditional medicine and exchanged shells and similar valuable items with people hailing from Central or East Asia (including Aryans).
4. There were movements of people to Central and East Asia, even via sea routes, but there was never migration into South Asia and the Harappans are indigenous people.

5. While the researchers are yet to get scientific evidence on the languages that were commonly spoken by the Harappans, Shinde and his team found strong possibility of influence of Sanskrit on the languages.

6. He said that Harappans were highly advanced people with sound knowledge of Sanskrit. We cannot rule out the influence of Sanskrit on other Indo-European languages, but we still do not have any evidence in the form of scripts analysed yet.

7. Shinde, along with two dozen researchers from across the globe, recently published a paper titled 'An Ancient

Flashback

1. A latest study by a team of archaeologists has busted the previously believed theories that all South Asians have an Aryan ancestry.
2. The study led by Vasant Shinde, former Vice-Chancellor of Deccan College, Pune, has found that the present-day South Asians are descendants of some indigenous population that already practised farming and hunting-gathering.
3. The South Asians who lived in the Indus Valley civilisation belonged to a completely different group of hunter-gatherers, who began farming much earlier.
4. This is in contradiction to the theory that the Iranians and South Asians shared ancestry, the study, published on September 6, revealed.
5. The researchers gathered and performed DNA analysis on 61 skeletal samples found within one kilometre of the famous Harappan site of Rakhigarhi cemetery in present day Haryana.
6. This is for the first time that archaeologists have conducted DNA testing of the skeletal samples that has now revealed the clear ancestries of the Harappans.
7. **The study, titled 'An Ancient Harappan Genome lacks DNA from Steppe Pastoralists or Iranian farmers', has traced and confirmed that the lineage of people of the Indus Valley civilisation diverged from the lineage of ancient Iranians who were hunter-gatherers, farmers and herders.**

Harappan Genome lacks DNA from Steppe Pastoralists or Iranian farmer' in Cell journal.

HEALTHCARE'S CLIMATE FOOTPRINT

India figures among the top ten countries that account for 75 per cent of global healthcare climate footprint, according to a report released by Health Care Without Harm, an international NGO, in collaboration with Arup. The healthcare sector is a major contributor to greenhouse gas emissions in the world and significantly contributes to the climate crisis. According to the report, the health sector emissions in India are equivalent to the emissions of 10 coal-fired power plants or 5,16,286 tanker trucks worth of gasoline or 8,280,255 passenger vehicles for a year. Taking emissions from various sectors into account, **India's healthcare sector's contribution to total carbon emissions** is 1.5 per cent as compared to the global average of 4.4 per cent.

What

1. The top three emitters (the United States, China, and the European Union) are **responsible for 56 per cent of the world's total healthcare climate footprint.**
2. Japan, Russia, Brazil, India, North Korea, Canada, and Australia are the other countries in the top 10 list of countries.
3. While India has the seventh-largest absolute health sector climate footprint, it has the lowest health-related emissions per capita of all 43 nations considered in the study.

4. Dr Alex Thomas, president of Association of Health Care Providers, India, said though India ranked the lowest in health-related emissions per capita (0.03 metric tonnes), its global contribution is at par with countries like Australia, Canada and South Korea.
5. India is vulnerable to climate change impacts and examples like how Chhattisgarh has helped reduce carbon emission need to be emulated. The state has shown how rooftop solar PV systems in primary health centres can reduce carbon emission.
6. The report, “**Health Care’s Climate Footprint- how the health sector contributes to the global climate crisis and opportunities for action**”, **provides the first-ever estimate on healthcare sector’s global climate footprint** and calls on the sector to achieve net-zero greenhouse gas GHG emissions.
7. The report released simultaneously at events in London and Medellin, Colombia makes the case for a transformation of the healthcare sector that aligns it with the Paris Agreement goal of limiting climate change to 1.5 degrees celsius.
8. Fossil fuel consumption is at the heart of **healthcare’s emissions**. The lion’s share of emissions — 71 per cent is primarily derived from the healthcare supply chain through the production, transport, and disposal of goods and services.
9. Emissions emanating directly from healthcare facilities and healthcare owned **vehicles make up 17 per cent of the sector’s worldwide footprint**.

ANTI-TANK MISSILE SUCCESSFULLY TEST-FIRES

The indigenously-developed Man Portable Anti-Tank Guided Missile (MPATGM) was successfully tested by the Defence Research Development Organization in Andhra Pradesh’s Kurnool. The test was the third stage of successful testing of the MPATGM, a low-weight fire-and-forget missile. A Defence Ministry official said all objectives of the test mission conducted were met by the missile.

What

1. The missile was launched from a man portable tripod launcher and the target was mimicking a functional tank in the Kurnool ranges. The missile hit the target in top attack mode and destroyed it with precision.
2. The third-generation missile is incorporated with state-of-the-art infrared imaging seeker along with advanced avionics.
3. The missile weighs around 14 kg and can be used by infantry battalions against armored vehicles. It has a maximum range of around 2.5 kms and will replace Soviet-era anti-tank missiles that are being used by the Army.
4. Earlier, India had cancelled a mega order of Israeli anti-tank missile, Spike, in favor of the MPATGM.
5. A multi-million dollar deal with an Israeli firm for the Spike missile had been abandoned after the DRDO promised to deliver its indigenously developed guided missile by 2021.
6. The DRDO successfully developed the anti-tank guided missile without any technological assistance from foreign firms.

SECOND 'NETRA' FOR IAF

Defence Research Development Organization (DRDO) handed over the second airborne warning plane, Netra, to the Indian Air Force on 11 September 2019. The indigenously-built aircraft was handed over to Western Air Command chief, Air Marshal Raghunath Nambiar, at the Bathinda Air Base in Punjab.

What

1. The Netra, an Airborne Early Warning and Control (AEWC) aircraft, had played a stellar role during the Balakot air strikes that had been carried out by the IAF in February this year.
2. It provided surveillance and radar coverage to the five Mirage jets that bombed terror launch pads in Balakot in Khyber-Pakhtunkhwa province in Pakistan.
3. Designed and developed by scientists of the DRDO, with assistance from the Bengaluru-based Centre for Airborne Systems, the Netra is fitted with indigenously developed electronics and hardware.
4. It is useful for surveillance, tracking, identification and classification of airborne and sea surface targets and is useful in detecting incoming ballistic missile threats.

FIRST-EVER ARRESTED LANDING OF LCA

DRDO and ADA on 13 September 2019 successfully executed the first-ever arrested landing of Light Combat Aircraft (Navy) at a shore-based facility, INS Hansa in Goa, inching closer to the goal of operating from an aircraft carrier. The LCA (Navy) is the naval version of indigenously developed Tejas fighter aircraft being developed for the Indian Air Force. The successful execution of arrested landing will pave the way for this indigenous platform to undertake Aircraft Carrier landing demonstration onboard the Indian Naval Aircraft Carrier, Vikramaditya.

What

1. Indian Navy needs several fighter jets for its future aircraft carriers including named INS Vikrant, which is under advanced stages of construction.
2. On April 20 this year, the then Navy Chief, Admiral Sunil Lanba had said IAC-1 or INS Vikrant will be delivered to Indian Navy by 2021. The Navy hopes to have a third aircraft carrier in the near future to counter China's growing might in the Indian Ocean region.
3. After several years of flight testing and four campaigns of dedicated testing at Shore Based Test facility Goa, the LCA (Navy) Flight Test Team led by Cmde J A Maolankar (Chief Test Pilot), Capt Shivnath Dahiya (LSO) and Cdr J D Raturi (Test Director) successfully executed a "textbook" arrested landing.
4. This arrested landing heralds the arrival of true indigenous capability and displays the professional prowess of our scientific community Aeronautical Development Agency (ADA) embedded with design plus build capability of HAL (ARDC), Defence Research and Development Organisation (DRDO) and CSIR Labs involved in executing this landmark event.

Flashback

1. An "arrested landing" on the deck of an aircraft carrier is a feat achieved by only a handful of fighter jets developed in the US, Russia, the UK, France and, more recently, China.
2. Achieving this successfully, over and over again at the test facility in Goa, will validate one of the most important design features on the LCA-N - its ability to handle the incredible stresses of making an "arrested landing" on the deck of an aircraft carrier.
3. It is only once the shore tests are successful that naval test pilots leading the development effort on the LCA-N prototypes can graduate to the next step - making an actual landing on India's only operational aircraft carrier, INS Vikramaditya.

INTERNATIONAL

PM AT EEF

Prime Minister Narendra Modi, in his Plenary Session at the 5th Eastern Economic Forum (EEF), said India will give a line of credit worth USD 1 billion for the development of the Far East. The relation of India and the Far East is not new but ages old. India is the first country which opened its consulate in Vladivostok. Even during Soviet Russia when there were restrictions on other foreigners, Vladivostok was open for Indians.

What

1. For the development of Far East, India will give a line of credit worth USD 1 Billion. The government has actively engaged in East Asia as part of its **'Act east'** policy. This will also give a new dimension to our economic diplomacy.
2. Praising Russian President Vladimir **Putin for his efforts, PM Modi said, "By transforming frozen land to a flowerbed, Vladimir Putin has paved way for a better future."**
3. Modi also said that India wants to help Russia in every possible way, adding **that President Putin's vision will definitely be successful.**
4. I believe that our brainstorming today at this forum will not only strengthen the efforts for human welfare in Far East, but also the entire mankind.
5. He added that both India and Russia have undertaken several **'ambitious' targets to "scale heights together in space and map the depth of the sea"**.
6. Speaking on Mahatma **Gandhi's 150th birth anniversary celebrations**, PM Modi said, This year, the whole world will be celebrating **Mahatma Gandhi's 150th birth anniversary. Come, let's be a part of each other's success story and work together towards our growth.**
7. **Ending his speech, PM Modi launched the 'Act Far East' policy to boost India's engagement with Russia and the Far East.**

About EEF

1. The Eastern Economic Forum 2019 will take place on 4-6 September in Vladivostok on the Far Eastern Federal University (FEFU) campus.
2. The Eastern Economic Forum was established by decree of the President of the Russian Federation Vladimir Putin in 2015 to support the economic **development of Russia's Far East** and to expand international cooperation in the Asia-Pacific region.

JOINT PANEL FOR FTA

India and the 10-member bloc of South-East Asian nations have decided to review their free trade agreement (FTA) in goods that was signed in 2009. The decision comes **at a time when Indian industry's resistance to any sort of FTA without** credible gains for it is on its peak, and a global trade war has threatened to drag down both economic and trade growth. While officials of both the sides will work out details in the coming days, the Indian industry has long complained of getting a raw deal from the Asean FTA.

What

1. According to a joint statement, both India and Asean members have decided to constitute a joint committee to reexamine the FTA.
2. The ministers agreed to initiate the review of the Asean-India trade in goods agreement to make it more user-friendly, simple, and trade facilitative for businesses.
3. This was decided at a meeting between economic ministers of Asean and commerce and industry minister Piyush Goyal in Bangkok on 10 September 2019.

4. In their meetings with Goyal late July, several industries, including steel, pharma, textiles and electronics, **criticised India's trade agreements** with Asean, Japan and South Korea in the past decade on grounds that **the country's trade deficit** with these nations just widened after these pacts had come into force and there was only limited gains for them.
5. If, on top of this, a free trade agreement with China is effected through the 16-nation RCEP (of which Beijing is a key member), cheap Chinese products will flood our market.
6. The bilateral trade between India and Asean rose to \$80.8 billion in 2018 from \$73.6 billion a year before.
7. Both India and Asean members agreed to further promote potential of bilateral trade through the utilisation of the free trade pact as well as cooperation in some areas like financial technology, connectivity, start-ups and innovation.

Flashback

1. The Association of Southeast Asian Nations (ASEAN) is a regional intergovernmental organization comprising ten countries in Southeast Asia, which promotes intergovernmental cooperation and facilitates economic, political, security, military, educational, and sociocultural integration among its members and other countries in Asia.
2. ASEAN also regularly engages other countries in the Asia-Pacific region and beyond. A major partner of Shanghai Cooperation Organisation, ASEAN maintains a global network of alliances and dialogue partners and is considered by many as a global powerhouse, the central union for cooperation in Asia-Pacific, and a prominent and influential organization.
3. It is involved in numerous international affairs, and hosts diplomatic missions throughout the world. The ASEAN Secretariat is located at Jakarta, Indonesia.

INDIA TO HOST 6TH INDIA-CHINA SED

India hosted the 6th India-China Strategic Economic Dialogue (SED) that was focused on collaboration between two countries on areas of infrastructure, energy, high-tech, resource conservation, pharmaceuticals and policy coordination. The three-day dialogue was held from September 7-9 and chaired by NITI Aayog vice chairman Rajiv Kumar and Chinese side was led by chairman, National Development and Reforms Commission (NDRC). Senior representatives from policy making, industry and academia are expected to participate in the dialogue from both sides.

What

1. Set up between erstwhile Planning Commission and the National Development and Reform Commission (NDRC), China during the visit of Chinese Prime Minister Wen Jiabao to India in December 2010, the SED has since then served as an effective mechanism for enhancing bilateral practical cooperation.
2. Under the aegis of the SED, senior representatives from both sides come together to constructively deliberate on and share individual best practices and successfully identify sector-specific challenges and opportunities for enabling ease of doing business and facilitating bilateral trade and investment flows.
3. The 5th SED was held in Beijing on April 14 2018 right before the informal Wuhan Summit between the leaders of the two countries.

BIO-TERRORISM IN SCO CONFERENCE

Underlining the threat posed by bio-terrorism, Defence Minister Rajnath Singh said new technologies in the battlefield are throwing up new challenges for the armed forces, and mentioned that the medical services of the armed forces are uniquely placed to tackle some of them. I would like to underline the importance of building capabilities to deal with the menace of bio-terrorism. Bio-terrorism is a real threat today,” **Singh said.** “It breaks out as a contagious plague and the armed forces and its medical services have to be at **the forefront of combating this menace.**”

What

1. Speaking at the first conference of military medicine of the member nations of the Shanghai Cooperation Group (SCO), **Singh said the “ever advancing battle field technology has imposed a vast array of previously **unrecognised challenges**”.**
2. **He said,** “Newer and non-conventional formats of warfare have further added to the complexity of existing challenges.”
3. The SCO is a Eurasian socio-political, economic and security alliance, and Singh **called it the “alliance of the East” because of its “growing centrality in Asia-Pacific.**
4. India joined the SCO as a full member in June 2017. **The ongoing SCO’s theme is on Combat Medical Support, Humanitarian Assistance & Patient Safety.**
5. Representatives of other SCO members such as China and Russia were present. However, even though an invite was sent to Pakistan, Defence Ministry said that it did not respond or send participants.
6. Regarding **bio-terrorism,** “(The) gravity of this kind of terror threat has been recognised and the scientific programme includes articles and discussions on these **topics and on managing any probable mass casualty situations.**”

Flashback

1. Bioterrorism is a planned and deliberate use of pathogenic strains of microorganisms such as bacteria, viruses, or their toxins to spread life-threatening diseases on a mass scale in order to devastate the population of an area.
2. People have described the next hundred years as **the “century of biology.” Incredibly rapid and profound changes in genetic modifications in bio-molecular engineering and enhanced bio-production technologies, however, may make it easier for terrorists to overcome the barriers that inhibited acquisition of biological weapons in the past.**
3. Historically, biological weapons have been a threat to humans for many centuries.

ECONOMY

INDIA IN GLOBAL ECONOMIC FREEDOM INDEX

India has jumped 11 spots on Global Economic Freedom index from **last year’s** 96th spot to the current ranking of 79. The latest gain is promising news for the Indian economy which is currently reeling under slowdown, Indian think-tank Centre for Civil Society said. It is well established that economic freedom fosters economic growth by affecting incentives leading to efficient use of resources. The freedom to choose and supply resources, competition in business, openness to trade, and legally protected property rights are central ingredients for economic progress, said Centre for Civil Society. The Economic Freedom of the World Report 2019 surveyed a total of 162 countries.

What

1. **India’s current ranking is** better than one of the major economies of the world — China — which stood at 113th.

2. Two Asian countries viz Hong Kong and Singapore continue their winning streak of last year with 1st and 2nd position respectively.
3. New Zealand, Switzerland, the United States, Ireland, the United Kingdom, Canada, Australia, and Mauritius are in the top 10 and have most economic freedom measured via a gamut of factors including levels of personal choice, ability to enter markets, the security of privately-owned property etc.
4. According to research in top peer-reviewed academic journals, people living in countries with high levels of economic freedom enjoy greater prosperity, more political and civil liberties, and longer lives, Centre for Civil Society said.
5. On the other hand, Iraq, Republic of Congo, Egypt, Syria, Democratic Republic of Congo, Angola, Algeria, Sudan, Libya, and Venezuela are at the bottom of the list where economic freedom is most curbed. Some despotic countries such as North **Korea and Cuba can't be ranked** due to lack of data.

How India scored on key components of economic freedom

1. Size of government: 8.22
2. Legal system and property rights: 5.17
3. Access to sound money: 8.37
4. Freedom to trade internationally: 6.08
5. Regulation of credit, labour and business: 6.69

MEASURES TO BOOST EXPORTS AND HOME BUYERS

Finance Minister Nirmala Sitharaman on 14 September 2019 announced measures related to exports and home buyers. Sitharaman announced six steps to boost exports including Dubai-like mega annual shopping festival from next year, new automatic refund system of Input Tax Credit for exporters from next month. For home buyers, government has set up a stress fund of Rs 10,000 crore for completion of stalled projects. However, the fund will not cover the projects affected by NPA and NCLT issues. Home buyers of the national capital region are most affected with developers like Jaypee Infratech, Amrapali and Unitech defaulting in completing their housing projects on time.

Some of the key highlights:

1. Stress fund for real estate of Rs 10,000 crore: Special window for affordable and middle income housing.
2. A special window to provide last mile funding for housing projects which are non-NPA and non-NCLT projects. It will focus on unfinished projects.
3. External Commercial Borrowing guidelines for the real estate to be relaxed.
4. Dubai-like annual mega shopping festival will be organised at four places across India by March 2020.
5. Themes for the shopping festival will be Yoga, Textile, Tourism and Leather.
6. New scheme for exporters: Scheme for Remission of Duties or Taxes on Export products will replace MEIS. Revenue foregone projected at up to Rs 50,000 crore.
7. Fully automated electronic refund for Input Tax Credit in GST: It will be implemented by the end of September.
8. Dashboard of credit movement of exports to be monitored by inter ministerial group.
9. Reduce time to exports turn around: Tech to be further leveraged by timely completion of ongoing initiatives to further reduce time of exports.
10. Govt to launch Free Trade Agreement utilisation mission.
11. Expanding scope of export credit insurance scheme by ECGS.
12. To launch origin management system to improve ease of doing business for exporters.
13. Existing scheme in textile of MEIS and old ROSL will continue till December 31.

14. Post December no MEIS will continue.
15. Sees clear signs of revival in industrial production in July.
16. E-assessment scheme of Income Tax returns notified on September 12. All communication will be faceless through technology.

INDIA HIKES CONTRIBUTION IN GLOBAL FUND

Strengthening its commitment towards eliminating AIDS, tuberculosis and malaria, India has increased its contribution to the Global Fund to \$22 million for the 6th replenishment cycle (2020-22), up 10% over the amount contributed in the fifth cycle. India shares a sustained partnership with the Global Fund since 2002, both as recipient and as a donor and has been allocated \$500 million in the current funding cycle (2018-21).

What

1. India's pledge for the Global Fund strongly demonstrates its strong political leadership to achieve universal health and its equally strong commitment to work across borders and join hands in fighting the epidemic of these three diseases.
2. Vardhan highlighted that India has become the first among G20, BRICS and implementer countries to announce the pledge for the sixth replenishment conference, setting precedent for other donors to contribute generously for the cause.
3. We are adequately financing our efforts to accomplish our goals of TB, HIV and malaria elimination. With our increased pledge, India has inched a step closer in this direction by stepping up the Global Fund efforts to strengthen health systems and save 16 million more lives across the globe.
4. As a donor, India has contributed \$46.5 million till 2019, including \$20 million for the fifth replenishment cycle.
5. The Global Fund is a partnership designed to accelerate the end of AIDS, tuberculosis and malaria. As an international organization, the Global Fund mobilizes and invests more than \$4 billion a year to support programs run by local experts in more than 100 countries.

Flashback

1. India has had a sustained partnership with the Global Fund since 2002 both as a recipient and as a donor.
2. So far, India has received \$2.0 billion from the Global Fund for attaining targets related to HIV/AIDS, TB and Malaria reduction.
3. In the current funding cycle (2018-21), the Global Fund has allocated \$500 million to India. As a donor, India has contributed \$46.5 million so far till 2019 including \$20 million for the 5th Replenishment.
4. Announcing the decision, Union **Health Minister Harsh Vardhan said, "India's pledge for the Global Fund strongly demonstrates its strong political leadership to achieve the universal health for all and its equally strong commitment to work across borders to join hands in fighting the epidemics of these three diseases"**.
5. India was the first implementing country to host a replenishment milestone of the Global Fund and now has become first among G20, BRICS and implementer countries to announce the pledge for the 6th Replenishment Conference, setting precedent for other donors to contribute generously for the cause.

INDIA'S POSITION IN GOLD RESERVES

India has pipped the Netherlands to move into the list of top ten countries in terms of total gold reserves. According to the World Gold Council, India has gold reserves totalling 618.2 tonnes, **which is marginally higher than the Netherlands' reserves of 612.5 tonnes**. Interestingly, in terms of individual countries, India actually ranks ninth since the International Monetary Fund (IMF) occupies the third position after the U.S. and Germany.

What

1. According to the latest release by the World Gold Council, U.S. leads the country list with total gold reserves of 8,133.5 tonnes followed by Germany with 3,366.8 tonnes.
2. While the IMF is ranked third with a holding of 2,451.8 tonnes, it is followed by countries such as Italy (2,451.8 tonnes), France (2,436.1 tonnes), Russia (2,219.2 tonnes), China (1,936.5 tonnes), Switzerland (1,040 tonnes) and Japan (765.2 tonnes) before India at the 10th spot.
3. **India's entry** into the list of top ten countries comes at a time when the quantum of monthly purchases is the lowest in over three years.
4. Net purchases [of a tonne or more] in July amounted to a relatively modest 13.1 tonnes. This is 90% less than June and the lowest level of monthly net purchases since August 2017, said World Gold Council.
5. Incidentally, the holding data for most countries is as of July 2019 as the compilation is typically reported with a lag of two months.
6. Previously, when the WGC reported the country-wise reserves in March, India's gold holding was pegged at 607 tonnes.
7. **India's gold reserves have grown substantially in the past couple of decades** from 357.8 tonnes in the first quarter of 2000 to the current 618.2 tonnes.
8. **India's neighbour Pakistan has** seen its standing unchanged at the 45th position with total gold reserves of 64.6 tonnes.

Flashback

1. The World Gold Council or the WGC is a nonprofit association of the world's leading gold producers.
2. A market development organization for the gold industry, the World Gold Council includes 25 members and many members are gold mining companies.
3. The WGC was established to promote the use of and demand for gold through marketing, research and lobbying. Headquartered in London, the WGC covers the markets which comprise about three-quarters of the world's annual gold consumption.
4. The WGC is an advocate for gold consumption. The WGC aims to maximize the industry's potential growth by monitoring and defending existing gold consumption.
5. It also co-sponsors research in the development of new uses of gold, or of new products containing gold.

HIGHER PROCUREMENT PRICE FOR ETHANOL

The Union Cabinet on 3 September 2019 approved a higher procurement price for ethanol purchased by oil marketing companies for the ethanol blended petrol (EBP) programme, which will come into effect from December 1 for a period of one year. According to the new decision, the price of ethanol from C-heavy molasses will be increased from ₹43.46 per litre to ₹43.75 per litre. The price of ethanol from B-heavy molasses will be increased from ₹52.43 per litre to ₹54.27 per litre.

What

1. The price of ethanol from sugarcane juice, sugar, and sugar syrup has been set at ₹59.48 per litre. The oil marketing companies will also pay the Goods and Services Tax and transportation tax associated with the ethanol supply — a provision that existed in the previous plan as well.
2. OMCs have been advised to fix realistic transportation charges so that long distance transportation of ethanol is not disincentivised, the government said.
3. OMCs are advised to continue according priority of ethanol from 1) sugarcane juice/sugar/sugar syrup, 2) B-heavy molasses 3) C-heavy molasses and 4) damaged food grains/other sources, in that order.
4. Ethanol availability for EBP programme is expected to increase significantly due to higher price being offered for procurement of ethanol from all the sugarcane based routes, subsuming 'partial sugarcane juice route' and '100% sugarcane juice route' under 'sugarcane juice route' and for the first time allowing sugar and sugar syrup for ethanol production.
5. Increased ethanol blending in petrol has many benefits including reduction in import dependency, support to agricultural sector, more environmental friendly fuel, lesser pollution and additional income to farmers.

SCIENCE AND TECHNOLOGY

CIMON RETURNS TO EARTH

The Crew Interactive Mobile CompaniON (CIMON), which is the first artificial intelligence (AI)-based astronaut assistance system returned to Earth after spending over a year on the International Space Station (ISS). The AI robot is now expected to make its way to Germany at the end of October. CIMON, which is pronounced as Simon, returned on board the SpaceX CRS-18 spacecraft last week on August 27.

What

1. The CIMON robot was made by Airbus and IBM along with the collaboration of the German Aerospace Center (DLR). It is a floating computer that was described as a flying brain by members of the Airbus team.
2. This AI-powered device which runs on is designed to interact with astronauts while behaving like a regular member of the crew.
3. According to Christian Karrasch, CIMON Project Manager at DLR, the technology demonstration of CIMON has completely met their expectations. He explained that during its 90-minute mission with the German ESA astronaut Alexander Gerst on the ISS in November 2018, it was able to function well in microgravity conditions and can interact successfully with astronauts.
4. With CIMON, we were able to lay the foundations for human assistance systems in space to support astronauts in their tasks and perhaps, in the future, to take over some of their work.
5. The mission went so well that the team has started developing an advanced version of the AI robot. The DLR statement states that the German agency is working with the European Space Agency (ESA) to deliver the new CIMON to the ISS in December this year for further testing with astronauts.

CAUSED OF MASS EXTINCTIONS FOUND

Around 420 million years ago, a devastating mass extinction event, known as Lau/Kozlowskii extinction, wiped around 23 per cent of all marine animals from the Earth in the late prehistoric Silurian Period. While scientists have long struggled to find the reason for this mass extinction, they have finally found an answer and this time no

asteroid impact or volcanic eruption is to blame. Researchers from Florida State University have found out that the Lau/Kozlowskii extinction, which is considered as one of the ten most dramatic extinctions in the history of our planet, was triggered by “rapid and widespread depletion of oxygen in the global oceans”.

What

1. The study, published in the journal *Geology* and conducted by researchers from Florida State University (FSU), resolves a longstanding paleoclimate mystery, but at the same time, raises urgent concerns about our modern oceans.
2. This makes it one of the few extinction events that is comparable to the large-scale declines in biodiversity currently happening today and a valuable window into future climate scenarios.
3. Scientists have long been aware of the Lau/Kozlowskii extinction as well as a related disruption in **Earth’s carbon cycle** responsible for the burial of enormous amounts of organic matter that caused significant climate and environmental changes. However, the link and timing between these two associated events remained stubbornly opaque.
4. **It’s never been clearly understood how this timing of events could be linked to a climate perturbation, or whether there was direct evidence linking widespread low-oxygen conditions to the extinction.**
5. Researchers used advanced geochemical methods that include thallium isotope, manganese concentration, and sulfur isotope measurements from important sites in Latvia and Sweden.
6. It enabled them to reconstruct a timeline of ocean deoxygenation with relation to the Lau/Kozlowskii extinction and subsequent changes to the global carbon cycle.
7. **The team’s new findings confirmed their original hypothesis that the extinction record might be driven by a decline of ocean oxygenation.**
8. Their multiproxy measurements established a clear connection between the steady creep of deoxygenated waters and the step-wise nature of the extinction event — its start in communities of deep-water organisms and eventual spread to shallow-water organisms.
9. For the first time, this research provides a mechanism to drive the observed step-wise extinction event, which first coincided with ocean deoxygenation and was followed by more severe and toxic ocean conditions with sulfide in the water column.

EVOLUTION OF ANTIBIOTIC RESISTANCE IN E. COLI

It is well known that low concentrations of antibiotics can cause resistance to evolve among bacteria. Now, a group of researchers from IISER Pune has taken this further to explore how exactly this happens. They have studied how resistance to the antibiotic rifampicin evolves in *E. coli* under two conditions — when the antibiotic is present in low or high concentrations, and when there is steady or pulsed supply of antibiotics.

What

1. Bacteria develop drug resistance both when they are within the body and outside. The fact that antibiotics are unevenly distributed within the body or intake of drugs could be stopped midway can lead to evolution of drug resistance.
2. Similarly, low doses of such drugs available intermittently in the environment can also cause drug resistance to evolve in the bacteria.
3. Finding that *E. coli* can evolve resistance to rifampicin within a few generations of drug exposure.
4. A characteristic of some drug-resistant strains of bacteria is that they do not live in isolation but get connected to each other, forming biofilms.

5. Using genetics and biochemistry, the researchers found that when under exposure to low concentrations of rifampicin, the E. coli tend to form biofilms.
6. This did not happen when they were exposed to high concentrations of antibiotic. This is pretty dangerous since biofilms by themselves are a major challenge for hospitals and clinicians.
7. Many genetic changes in the E.coli descendents were observed when the bacteria were exposed to low concentration of the antibiotic rifampicin.
8. In order to understand the relevant genetic mutations that helped the bacteria form biofilms, the researchers engineered the individual mutations into the parent bacteria and studied which particular mutation was responsible for resistance against rifampicin.
9. They found that biofilm formation was mediated by the activation of particular gene called the fim operon promoter. Activation of the gene allowed the expression of a type of fimbriae — thread-like structures that help a bacterium attach itself to another bacterium. These are important in the formation of biofilms.

FINGERPRINT OF EARTH'S ATMOSPHERE

Astronomers at Canada's McGill University have made a "**fingerprint**" for the Earth, which could be used to identify a potentially life sustaining planet beyond the solar system. Using over a decade of observations of the Earth's atmosphere taken by the SCISAT satellite, McGill Physics student Evelyn Macdonald, and her supervisor Prof Nicolas Cowan have constructed a transit spectrum of Earth — a detail on the fingerprint-like unique composition of our planet's atmosphere.

What

1. The findings of the work were published in the science journal Monthly Notices of the Royal Astronomical Society on August 28, and can help scientists determine the kind of signals called 'biosignatures' that astronomers need to look out for in order to find Earth-like planets outside our solar system.
2. The fingerprint includes the simultaneous occurrence of both ozone and methane, which happens only when there is an organic source of these compounds on the planet.
3. **A handful of researchers have tried to simulate Earth's transit spectrum**, but this is the first empirical infrared transit spectrum of Earth. This is what alien astronomers would see if they observed a transit of Earth.
4. The SCISAT satellite was developed by the Canadian Space Agency to help scientists understand the depletion of the **Earth's ozone layer** by looking at particles in the atmosphere as sunlight passes through them.

WATER DISCOVERED FOR FIRST TIME IN HABITABLE EXOPLANET

Water has been discovered for the first time in the atmosphere of an exoplanet with Earth-like temperatures that could support life as we know it, scientists revealed. Eight times the mass of Earth and twice as big, K2-18b orbits in its star's "habitable zone" at a distance -- neither too far nor too close -- where water can exist in liquid form, they reported in the journal Nature Astronomy.

What

1. Most exoplanets with atmospheres are giant balls of gas, and the handful of rocky planets for which data is available seem to have no atmosphere at all.
2. Even if they did, most Earth-like planets are too far from their stars to have liquid water or so close that any H₂O has evaporated.
3. Discovered in 2015, K2-18b is one of hundreds of so-called "super-Earths" -- planets with less than ten times the mass of ours -- spotted by NASA's Kepler

- spacecraft. Future space missions are expected to detect hundreds more in the coming decades.
4. Working with spectroscopic data captured in 2016 and 2017 by the Hubble Space Telescope, Tsiaras and his team used open-source algorithms to analyse the starlight filtered through K2-18b's atmosphere.
 5. They found the unmistakable signature of water vapour. Exactly how much remains uncertain, but computer modelling suggested concentrations between 0.1 and 50 per cent.
 6. By comparison, the percentage of water vapour in Earth's atmosphere varies between 0.2 percent above the poles, and up to four per cent in the tropics.
 7. There was also evidence of hydrogen and helium as well. Nitrogen and methane may also be present but with current technology remain undetectable.
 8. K2-18b orbits a red dwarf star about 110 light years distant -- a million billion kilometres -- in the Leo constellation of the Milky Way, and is probably bombarded by more destructive radiation than Earth.
 9. This is not only because super-Earths like K2-18b are the most common planets in our galaxy, but also because red dwarfs -- stars smaller than our Sun -- are the most common stars."
 10. The new generation of space-based star gazing instruments led by the James Webb Space Telescope and the European Space Agency's ARIEL mission will be able to describe exoplanet atmospheres in far greater detail.
 11. ARIEL, slated for a 2028 launch, will canvas some 1,000 planets, a large enough sampling to look for patterns and identify outliers.

YUTU-2 DISCOVERS 'GEL-LIKE' SUBSTANCE

China's Yutu-2 rover, which landed on the far side of the Moon as part of the **Chang'e 4 mission**, has made an unusual find on the satellite's surface. According to a report from Space.com, the **Yutu-2 rover has found "gel-like" substance inside a crater**. The discovery was made on lunar day 8, which started on July 25. Each Lunar day is around two Earth weeks.

What

1. The report adds that the discovery of the gel-like substance on the Moon has **ensured that scientists are now focusing the rover's instruments to figure out this material**.
2. Yutu-2 was navigating through an area filled with small impact craters. **The 'drive diary' for Yutu-2** noted the finding of the gel-like substance. As of now, it is not clear what this is, but it raises a whole set of new questions for Chinese scientists.
3. One explanation, according to the report, is that the substance could be melt glass which was created from meteorites striking the surface of the moon, though the Chinese space agency has not confirmed anything.
4. **China's Chang'e 4 mission became the first one to land on the far side or the dark side of the Moon** earlier this year. Previously, it was reported that the lunar probe had found new evidence from the Von Kármán crater inside the South Pole-Aitken (SPA) basin on the Moon. This is also the largest crater in the solar system.
5. The Yutu-2 probe has also collected spectral data samples from the basin. The findings give an insight into how the Moon evolved.
6. The rocks found in the crater contain minerals such as low-calcium (ortho)pyroxene and olivine. These are also the primary components **of the Earth's upper mantle**.
7. **China's Chang'e 4 mission** will also conduct the first radio astronomy experiments from the far side and see whether plants can grow on the surface.

MISCELLANEOUS

GLOBAL LIVEABILITY RANKING 2019

One of Pakistan's cities — Karachi — has been ranked among one of the least liveable cities on the earth. On the other hand, national capital Delhi does not even feature in the top 100 cities to live in, according to a recent report by the Economist Intelligence Unit titled Global Liveability Ranking 2019. Karachi got 136th spot out of 140 cities across the world whereas Delhi was on 118th position, slipping six spots from its previous ranking. Syrian city Damascus scored the lowest on the list and was at 140th position.

What

1. New Delhi fared low on the list because of its declining air quality. A slew of cities in emerging markets that are among the most exposed to the effects of climate change have seen their scores downgraded. These include New Delhi in India, The Economist Intelligence Unit said in its report.
2. According to The Economist Unit's findings, **Venezuela's Caracas, Algeria's Algiers, Cameroon's Douala, Zimbabwe's Harare, PNG Port Moresby, Pakistan's Karachi, Libya's Tripoli, Bangladesh's Dhaka, Nigeria's Lagos and Syria's Damascus** are the least liveable cities in the world as they performed low in five categories viz stability, healthcare, culture & environment, education and infrastructure.
3. Damascus, for example, has been continually low for seven years, owing to Syria being war-torn for several years now.
4. **Austria's capital city Vienna continues to remain the most** liveable city on the planet after it replaced Australian Melbourne in 2018, ending the latter's record run of seven years to rank as the most liveable city.
5. What makes this city exceptionally livable is the fact that it has struck the right chord of good **infrastructure, strong stability factor, and culture and environment**. On EIU's index, the Austrian city scored a near-perfect 99.1 out of 100.
6. Following Vienna are Melbourne, Sydney and Osaka at third, fourth and fifth position respectively. The list is largely dominated by Australian, Canadian and Japanese cities.

RAVISH KUMAR RECEIVED RAMON MAGSAYSAY AWARD

Senior Journalist Ravish Kumar on 9 September 2019 received the Ramon Magsaysay award 2019, regarded as the Asian version of the Nobel Prize, in Manila, Philippines. Accepting the award, Ravish pointed out that the Indian media is in a state of **"crisis" which is not accidental or random, but "systemic and structural"**.

Ravish, who is the Managing Editor and news anchor with NDTV.

What

1. Kumar was among five individuals who were declared winners of the award, **which is Asia's premier prize and highest honour and celebrates the greatness of spirit and transformative leadership in Asia**.
2. The four other winners of the 2019 Ramon Magsaysay Award are Ko Swe Win from Myanmar, Angkhana Neelapaijit from Thailand, Raymundo Pujante Cayabyab from the Philippines and Kim Jong-Ki from South Korea.
3. Born in Jitwarpur village in Bihar, Kumar joined New Delhi Television Network (NDTV) in 1996 and worked his way up from being a field reporter.
4. After NDTV launched its 24-hour Hindi-language news channel – NDTV India – **targeting the country's 422 million native speakers of Hindi, he was given his own daily show "Prime Time."**

Flashback

1. The Ramon Magsaysay award was established in April, 1957. This award was created to commemorate Ramon Magsaysay, the late president of Philippines. The Ramon Magsaysay Award is **Asia's premier prize and highest honour**.
2. The Award is presented in formal ceremonies in Manila, Philippines, the birth anniversary of the much-esteemed Philippines President whose ideals **inspired the Award's creation**.
3. This award is given in 6 categories; Government services (GS), Public services (PS), Community leadership (CL), Journalism, literature & creative communication arts (JLCCA), Peace and International Understanding (PIU) and Emergent leadership (EL).

MITHALI RAJ RETIRED FROM T20

Former captain Mithali Raj announced her retirement from the shortest format of the game on 3 September 2019 after having led the Indian women's cricket team in 32 T20 matches including three World Cups in 2012 (Sri Lanka), 2014 (Bangladesh) and 2016 (India). **Mithali led the India women's team in the first-ever T20** played in Derby back in 2006. Since that win against the England Women, Mithali played another 88 games in which she scored 2,364 runs, the most by an Indian woman in T20s. Mithali is also the first Indian to reach the landmark of 2,000 T20 runs.

APACHE AH-64E INDUCTED IN IAF

The Indian Air Force (IAF) has formally inducted eight of the 22 AH-64E Apache helicopters at the Air Force Station, Pathankot. The Boeing AH-64E Apache helicopters, which are expected to improve battlefield attack capabilities for the IAF, were inducted by Air Chief Marshal BS Dhanoa. Earlier, the Apache helicopters had arrived in July in two batches of four each and had landed at the Air Force Station, Hindon, on time as per the contract. The variant AH-64E Apache inducted is also flown by the US Army. The delivery of the balance 14 Apache helicopters for the IAF is expected to be completed by 2020.

What is the Apache AH-64E Helicopter?

1. These machines are advanced multi-mission helicopters.
2. Apache comes with the latest technology insertions and is the **world's best attack** helicopter.
3. They have a fully integrated, **digital cockpit, enhancing the aircraft's mission** performance.
4. According to Boeing, these helicopters are uniquely suited to meet a **commander's needs**.
5. They can be used in reconnaissance, security, peacekeeping operations, and lethal attack, in difficult environments.
6. These helicopters have come through the Foreign Military sales and in 2015 the order for production, training, and support of these helicopters were finalized by the Ministry of Defence (MoD).
7. Apache attack helicopters are being purchased to replace the Mi-35 fleet. Alongside the capability to shoot fire and forget anti-tank guided missiles, air to air missiles, rockets and other ammunitions, it also has modern Electronic Warfare (EW) capabilities to provide versatility to helicopters in network-centric aerial warfare.

- The Apaches have been part of numerous historic campaigns worldwide. And have been modified according to the specifications and needs of the IAF. It may be noted that India is the 16th country which has chosen the Apache helicopter and has inducted the most advanced variant.

INDIA JUMPS IN WORLD TOURISM INDEX

India clocked the biggest improvement among the top performers in global tourism, jumping from 40th in 2017 to 34th in the Travel & Tourism Competitiveness Report 2019 published by the World Economic Forum. The only lower-middle income country in the top-35 ranked countries, a look at where it scores and where it lags as a major tourist destination.

What

- Cultural heritage and natural resources are, expectedly, two factors where India scores highly in the report.
- The country also worked on its business environment and environmental sustainability, leading countries in the Asia-Pacific in terms of improvement on these. But it also slid since the last report on its ranking on four of the 14 broad factors on which the 140 countries were ranked by WEF.
- The top quartile, that is, the top 35 economies in the WEF Travel & Tourism rankings account for about 84% of the global travel and tourism GDP and nearly 70% of all international tourist arrivals.
- All but six of them are high-income economies, 20 are from Europe, 10 are from Asia-Pacific, four from the Americas and one (UAE) is from the Middle East and North Africa region.
- According to World Bank, a whopping 1.5 crore international tourists visited India in 2017. Indian travel and tourism industry employs 2.8 crore people and contributes 3.6% to GDP.

INDIAN TO LEAD UNMHA

UN Secretary-General Antonio Guterres appointed a veteran Indian Army official as the head of the **world body's observer mission in Yemen's port city of Hodeidah**. Lieutenant General (retired) Abhijit Guha has been appointed as the Chair of the Redeployment Coordination Committee (RCC) and head of the United Nations Mission to support the Hudaydah Agreement (UNMHA). He will succeed Lieutenant General Michael Lollesgaard, who served as RCC Chair and head of UNMHA from January 31 to July 31, the Secretary General's spokesman said in a statement.

What

- The Indian Army official is tasked with leading the UN oversight of a ceasefire agreement in Hodeidah. The truce went into effect in December after peace talks in **Sweden between the Yemen's government and the Iran-backed Houthi rebels**, who have been fighting each other since 2015.
- Guha brings to this position 39 years of national and international military experience. He served from 2009-2013 as the Deputy Military Adviser and the Military Adviser within the Office of Military Affairs of the United Nations Department of Peacekeeping Operations, while also establishing the Office of Peacekeeping and Strategic Partnerships in 2013.
- He has also previously served as a Military Observer as part of the United Nations Transitional Authority in Cambodia during 1992-3.
- After his retirement from the Indian Army in 2013, General Guha served on the Expert Panel on Technology and Innovation in UN Peacekeeping (2014) and the High Level Independent Panel on Peace Operations (2015).

5. He has also led a number of **United Nations' investigations and boards of inquiry** in Africa and the Middle East.
6. UNMHA was authorised for an initial period of six months to lead and support the functioning of the RCC, assisted by a secretariat staffed by UN personnel, to oversee the governorate-wide ceasefire, redeployment of forces and mine action operation.
7. It was also authorised to monitor compliance of the parties to the ceasefire in Hudaydah governorate and the mutual redeployment of forces from the city of Hudaydah and the ports of Hudaydah, Saleef and Ras Isa and to work with the parties so that security of the city and the ports of Hudaydah, Saleef and Ras Isa is assured by the local security forces in accordance with the Yemeni law.

HINDI DIWAS 2019

Every year on 14 September, the nation celebrate Hindi Diwas, which marks the significance of the day when the Constituent Assembly after Independence adopted Hindi as the official language of India. After the Constituent Assembly took the decision in 1949, the Rashtrabhasha Prachar Samiti, Wardha on 1953 requested to observe 14 September as Hindi Day every year and broadcast the language in every region. Written in the Devanagiri script, Hindi is one of the 22 scheduled languages spoken in the country and one of the official languages of the Union Government. The other is English language. According to Ethnologue, a US organisation owned by Christian group SIL International that compiles a global database of languages, Hindi is the fourth most-spoken language in the world.

What

1. During the 200 years of British rule in India, Hindi became oppressed and was considered a backward language. After the colonial rule ended on 15 August, 1947, India found itself standing on the threshold of a new era wherein the task was to build a strong and independent nation.
2. Along with finding a footing in the social, economic and political grounds, India also faced the challenge of linguistic cohesion. There were questions in people's mind what could be the official language of India.
3. Consequently, on 14 September, 1949, the Constituent Assembly selected the Hindi language as the official language of India.
4. Hindi is also the primary language of communication between the Central government and state governments. However, the state governments were given the option to choose their own official language, after which the Constitution gave official language status to 22 other languages in India, along with Hindi and English.
5. In addition, the government awarded the distinction of classical language to Kannada, Malayalam, Odia, Sanskrit, Tamil and Telugu. Classical language status is given to languages which have a rich heritage and independent nature.

IAF RECEIVES SPICE-2000

The Indian Air Force has started receiving the 'building blaster' version of the Balakot air strike-fame Spice-2000 bombs at the Gwalior airbase. The Israeli firm has started the delivery of the Spice-2000 bombs to India and the first batch of these bombs was received recently. The weapons have been delivered to Gwalior as it is the home base of the Indian Air Force's Mirage 2000 fighter aircraft fleet and they are the only fleet which can fire the Israeli bombs.

What

1. The Indian Air Force has signed an over Rs 250 crore contract with Israel with Mark 84 warhead and bombs which can destroy buildings completely.

2. The IAF had signed a contract with Israel in June this year for acquiring more than 100 Spice-2000 bombs under the emergency procurement powers of the services given by the Narendra Modi government.
3. The contract was signed as the Air Force wanted to acquire the bombs after their successful usage in the Balakot airstrikes against a Jaish-e-Mohammed (JeM) terrorist camp in Pakistan.
4. During the Balakot strikes, the Air Force had dropped Spice-2000 bombs from Mirage-2000 fighter aircraft after a pack of 12 of these fighters crossed the Line of Control (LoC) to strike the Jaish terror camp in the Khyber Pakhtunkhwa province.

Flashback

1. SPICE, manufactured by the Israeli defence technology company Rafael, is short for 'Smart, Precise-Impact and Cost-Effective'.
2. The SPICE guidance kit consists of two pieces - one is attached to the bomb's head and the other is attached at the end.
3. The SPICE-2000 consists of two parts -- one is attached to the head of a bomb while the other is affixed at the end.
4. The first piece has a camera located at its tip while the second piece is essentially a fin allowing a bomb outfitted with SPICE-2000 to glide.