

My Notes....

NATIONAL

CITIZENSHIP (AMENDMENT) ACT 2019

The Citizenship (Amendment) Bill 2019, which provides a path to Indian citizenship for persons belonging to religious minority groups persecuted in Pakistan, Afghanistan and Bangladesh, was passed by Parliament and the Bill became Act after **receiving the President's assent on 12 December 2019**.

What

- The Act states that Hindus, Sikhs, Christians, Jains, Buddhists and Parsis from Pakistan, Afghanistan and Bangladesh who have migrated to India before December 31, 2014 and have lived here for five years will be eligible for citizenship.
- The home minister assured the north-east states that their rights will be protected and the new law will not have an impact on them.
- The Act amends the Citizenship Act, 1955 to make illegal migrants who are Hindus, Sikhs, Buddhists, Jains, Parsis and Christians from Afghanistan, Bangladesh and Pakistan, eligible for citizenship.
- The Citizenship Act 2019 reduces duration of residency from existing 11 years to just five years for people belonging to the same six religions and three countries.
- The Bill allows that registration of Overseas Citizen of India (OCI) cardholders may be cancelled for violation of any law.
- The illegal migrants cannot become Indian citizens, the government had exempted specified groups of illegal migrants in 2015 and 2016 from provisions of The Foreigners Act, 1946 and The Passport (Entry into India) Act, 1920.
- An illegal migrant is defined as people who either entered the country without proper documents, or stayed on beyond the permitted time.

KEY FEATURES	
<p>Bill grants citizenship to Hindus, Sikhs, Christians, Jains, Buddhists & Parsis from Pakistan, Bangladesh and Afghanistan who moved to India before Dec 31, 2014</p> <p>Reduces duration of residency from 11 years to 5 years</p>	<p>States with ILPs and areas under Sixth Schedule in north-east exempt from new law</p> <p>Authorises govt to cancel registration of OCI cardholders in case of violation of provisions of Citizenship Act or any other law</p>

HUMAN DEVELOPMENT INDEX 2019

India ranks 129 out of 189 countries on the 2019 Human Development Index, marking incremental improvement from the **previous year's ranking (130 of 189)**. This steady progress caps nearly three decades of rapid development, which have seen a dramatic reduction in absolute poverty, along with gains in life expectancy, education, and access to health care.

What

- These are among the key findings of the 2019 Human Development Report, released on 9 December 2019 by the United Nations Development Programme (UNDP) and **entitled "Beyond income, beyond averages, beyond today: inequalities in human development in the 21st Century."**
- The HDI is measured in three basic dimensions of human development for assessing long-term progress — a long and healthy life, access to knowledge, and a decent standard of living.
- The report shows that from 1990-2018 life expectancy increased by 11.6 years and per capita income rose by 250 per cent.

4. The Human Development Report (HDR), which pioneers a more rounded way to measure countries' progress beyond just economic growth, says that as the gap in basic standards is narrowing, with an unprecedented number of people escaping poverty, hunger and disease, the necessities to thrive have evolved. The next generation of inequalities is opening up, particularly around technology, education, and the climate crisis.
5. Inequality is about the unequal distribution of wealth and power: the entrenched social and political norms that are bringing people onto the streets today, and the triggers that will do so in the future unless something changes. Recognizing the real face of inequality is a first step; what happens next is a choice that each leader must make.
6. The report analyzes inequality in three steps: beyond income, beyond averages, and beyond today, proposing a battery of policy options to tackle it.

WHAT THE REPORT REVEALS

131
2016

Overall index showed that India scored 0.647 in 2018, as against 0.643 in 2018

130
2017

In India, 271 million people were lifted out of poverty from 2005-06 to 2015-16

129
2018

Jan Dhan Yojana and Ayushman Bharat are crucial in ensuring vision of development for all

India ranks 122 of 162 countries on 2018 gender inequality index

INDIA IN CCPI 2020

India is among the top 10 nations as per the Climate Change Performance Index (CCPI) which is based parameters like renewable power and energy use efficiency, Power Minister R K Singh said. This assumes significance in view of India's resolve to reach 175 GW of clean energy capacity by 2022. The country has already achieved around 84 GW of clean energy capacity, including 32 GW of solar and 37 GW of wind energy.

What

1. At present, India's total installed power generation capacity is around 365 GW. CCPI report released during COP 2019 at Madrid.
2. India is ranked among the top 10 countries in CCPI, which was released after analysing four parameters, that is greenhouse gas emission, renewable energy, climate change and energy use, Singh said while addressing the 29th National Energy Conservation Awards ceremony in

Flashback

1. Published annually since 2005, the Climate Change Performance Index (CCPI) is an independent monitoring tool for tracking the climate protection performance of 57 countries and the EU.
2. It aims to enhance transparency in international climate politics and enables comparison of climate protection efforts and progress made by individual countries.
3. The implementation phase of the Paris Agreement enters a crucial phase in 2020, where countries are due to submit their updated Nationally Determined Contributions (NDCs).
4. **The CCPI assesses each country's performance in four categories: GHG Emissions (40% of the overall ranking), Renewable Energy (20%), Energy Use (20%) and Climate Policy (20%).**
5. **The CCPI's unique climate policy section, evaluating countries' national and international climate policy performance, is only possible through the continued support and contributions of around 350 climate and energy experts.**

Delhi.

3. The minister said 355 industrial units and other establishments have participated in the awards and have collectively achieved savings of Rs 5,283 crore by saving 105.66 billion units of electricity.
4. This year, energy conservation was celebrated through week-long activities culminating in the National Energy Conservation Day on 13 December 2019.
5. He emphasised the need for taking measures in order to reduce carbon dioxide emissions so as to minimise the adverse impact of climate change.
6. The **CCPI is an independent monitoring tool of countries' climate protection** performance. It aims to enhance transparency in international climate politics and enables the comparability of climate protection efforts and progress made by individual countries.
7. **The ranking results are defined by a country's aggregated performance** in 14 indicators within the four categories "GHG Emissions", "Renewable Energy" and "Energy Use", as well as on "Climate Policy", in a globally unique policy section of the index.
8. The CCPI 2020 results illustrate the main regional differences in climate protection and performance within the 57 evaluated countries and the EU. Still no country performs well enough in all index categories to achieve an overall very high rating in the index. Therefore, once again the first three ranks remain empty.
9. In this year's index, Sweden leads the ranking on rank 4, followed by Denmark (5) and Morocco (6). The bottom five in this year's CCPI are Islamic Republic of Iran (57), Republic of Korea (58), Chinese Taipei (59), Saudi Arabia (60) and the United States (61), rated low or very low across almost all categories.

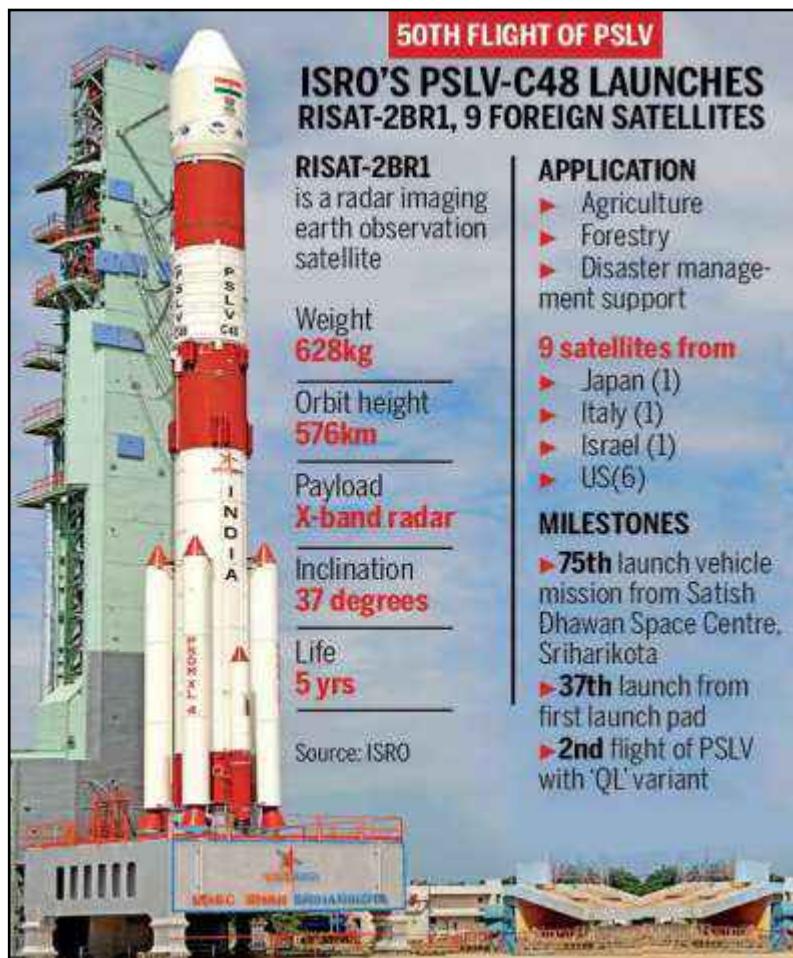
ISRO LAUNCHED RISAT-2BR1

India's Polar Satellite Launch Vehicle (PSLV) successfully completed its 50th spaceflight on 11 December 2019, placing country's advanced radar-imaging satellite RISAT-2B1 into space from Sriharikota. The satellite weighing 628 kgs was launched aboard PSLV-C48 from Satish Dhawan Space Centre in Sriharikota in Andhra Pradesh. The rocket also carries nine other foreign satellites six from USA and one each from Israel, Japan and Italy, as part of a commercial arrangement with NewSpace Private Limited. RISAT-2BR1 was placed into orbit around 16 minutes after the lift off while the remaining satellites were released in their respective orbits about five minutes later. ISRO Chairman K Sivan and other scientists greeted each other as all 10 satellites were injected into the desired orbit.

What

1. Today's mission was a 'historic' one coinciding with PSLV's 50th flight. The 50th PSLV vehicle successfully injected RISAT-2BR1 precisely into the 576 km orbit.
2. PSLV's payload capacity has increased from 860 kg to 1.9 tonnes and the "versatile vehicle" has carried 52.7 tonne so far, 17 percent of which was customer satellites.
3. The 628 kg remote imaging earth observation satellite RISAT-2BR follows RISAT-2B, which was placed successfully in orbit in May this year.
4. As many as nine other satellites-- six from the US and one each from Israel, Italy and Japan rode piggy back on PSLV-C48.
5. The satellites are being launched under a commercial arrangement with NewSpace India Ltd. Of the total 50 missions, 48 have been successful for ISRO.
6. The PSLV has placed around 310 foreign satellites with the first mission in September 1993.
7. Some significant launches by PSLV include Chandrayaan-1, Mars Orbiter Mission (MOM) and the record launch of 104 satellites in one goes earlier.

8. PSLV-C48 is the second flight with 'QL' configuration equipped with four strap-on motors on its sides. The first flight with a similar configuration was launched in April 2019 (PSLV-C45/EMISAT and 28 other satellites).
9. Apart from being used for military purposes, the key applications of RISAT-2BR1 include agriculture, forestry and disaster management support.
10. While six satellites from the US would be used for multi-mission remote sensing purpose, the one launched by Italy was aimed at taking up search and rescue.
11. A radar imaging earth observation satellite built by Japan and another by Israel were also launched.
12. The launch of PSLV-C48/RISAT-2BR1 is the sixth launch made by ISRO in 2019. The mission life is five years.



CREAMY LAYER'S EXCLUSION FROM SC/ST QUOTA

The Union government on 2 December 2019 asked the Supreme Court to refer to a seven-judge Bench the question whether the creamy layer should apply or not to the Scheduled Caste/Scheduled Tribe people while providing them reservation in government promotions. On September 26, 2018, a five-judge Bench of the court unanimously agreed with a 2006 judgment of another five-judge Bench in the M. Nagaraj case, which upheld the application of creamy layer principle to SC/ST in promotions.

What

1. The 2018 judgment, authored by Justice Rohinton F. Nariman, also refused the **government's plea to refer the 2006 Nagaraj judgment to a seven-judge Bench.**
2. On 2 December 2019, however, Attorney General K.K. Venugopal urged the court to reconsider and refer the judgment to a seven-judge Bench. A Bench led by Chief Justice of India Sharad A. Bobde agreed to hear the case after two weeks.
3. The 2018 judgment, while modifying a part of the Nagaraj verdict that required the **States to show quantifiable data to prove the "backwardness" of a SC/ST community** in order to provide quota in promotion in public employment, **however, rejected the Centre's argument that Nagaraj had misread the creamy layer concept by applying it to SC/ST.**

4. The whole object of reservation is to see that backward classes of citizens move forward so that they may march hand in hand with other citizens of India on an equal basis.
5. This will not be possible if only the creamy layer within that class bag all the coveted jobs in the public sector and perpetuate themselves, leaving the rest of the class as backward as they always were.
6. The 2018 judgment said that when a court applied the creamy layer principle to SCs and STs, it did not in any manner tinker with the Presidential List under Articles 341 or 342 of the Constitution. The caste or group or sub-group named in the said list continues exactly as before, Justice Nariman had reasoned.
7. It is only those persons within that group or sub-group, who has come out of untouchability or backwardness by virtue of belonging to the creamy layer, who are excluded from the benefit of reservation, Justice Nariman had explained.

INDIA'S FIRST OPEN SOURCE GEOSPATIAL DATA OBSERVATORY

India Observatory, country's first socio, economic and ecological open-source integrated Geospatial data platform was launched at Hyderabad in GeoSmart India conference. The **observatory is comprehensive information on India's social, ecological and economic parameters on a single spatial and temporal platform designed to supplement local level decision making by village communities, Panchayats, NGOs and government officials.**

What

1. **India Observatory has the 'India Data Platform'** at its core, which is built on open source and brings together data on over 1,600 parameters, ranging from village to national level in the form of maps, graphs, tables and infographics. It is freely available for civil society organizations, students, government departments and citizens.
2. The Foundation for Ecological Security (FES), CEO Rao Puppala, said, "There are vast data sets, algorithms and tools available from various government and non government organisations.
3. The data is too technical and difficult for ordinary citizens to interpret. Most of these datasets are sector focused and they are not integrated. The India Observatory is a solution for it.
4. Data ranging from census to agriculture information, infant mortality rate to health status, rivers, ground water contamination and biodiversity of species all the data is available on one platform called www.indiaobservatory.org.in."
5. The observatory has 90 per cent of India's open data some from 1951 and some from 1991 to till date. We have done geospatial mapping where data can be visualized on the maps easily.

SENIOR CITIZENS (AMENDMENT) BILL 2019

The Union Cabinet approved The Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill, 2019, removing the cap of Rs 10,000 on the maximum monthly allowance permissible, and providing for the appointment of nodal police officers for senior citizens in every police station and the creation of a special police unit for senior citizens at the district level. The Bill seeks to amend The Maintenance and Welfare of Parents and Senior Citizens Bill, 2007, passed by Parliament during the term of UPA-I. The 2007 Bill was introduced in Lok Sabha on March 20, 2007, and passed on December 5 and 6 of that year by Lok Sabha and Rajya Sabha respectively.

Key features of the Bill

1. Children and heirs were legally obligated to provide maintenance to senior citizens.

2. State governments were permitted to establish old age homes in every district.
3. Senior citizens who are unable to maintain themselves, were given the right to apply to a maintenance tribunal seeking a monthly allowance from their children or heirs.
4. State governments were to set up maintenance tribunals in every subdivision to decide the level of maintenance. Appellate tribunals were to be established at the district level.
5. State governments were to set the ceiling for the maximum monthly maintenance allowance. The Bill capped the maximum monthly allowance at Rs 10,000 per month.
6. Punishment for not paying the required monthly allowance was fixed at Rs 5,000, or up to three months in prison, or both.

ARMS (AMENDMENT) BILL PASSED

Makers of illegal arms and those carrying such guns will face maximum punishment of life in jail if convicted under a proposed legislation passed by Lok Sabha on 9 December 2019. The Arms (Amendment) Bill, 2019 also ensures that those using firearm in a rash or negligent manner in celebratory gunfire, endangering human life or personal safety of others shall be punishable with imprisonment to two years, or with fine which may extend to Rs one lakh, or with both; Amendments to the Arms (Amendment) Bill including provision of special status to sportspersons.

What

1. The Bill seeks to enhance punishment for illegally possessing and making prohibited arms besides other changes in the six- decade-old Arms Act.
2. The Arms (Amendment) Bill makes provision that a person can have a maximum of two firearms, as against the present norm of three.
3. Those who own more than two firearms will have to deposit the third one with authorities or authorised gun dealers within 90 days for de-licensing once the amendment is approved by Parliament, according to the bill.
4. As per the bill, the government proposes to amend Section 25 (1AA) of the Arms Act, 1959, to give punishment from the usual life term of 14 years to "imprisonment for the remainder of that person's life" for manufacturing, selling, repairing and possessing "prohibited" arms. The minimum punishment under this section will be 14 years.
5. Under the present law, the offence invites imprisonment not be less than seven years but may extend to life imprisonment -- mostly up to 14 years.
6. According to an estimate, India has around 35 lakh gun licences. Thirteen lakh people have a license to carry weapons in Uttar Pradesh, followed by Jammu and Kashmir, where 3.7 lakh people possess arms licences, most of which were taken in the name of personal security.
7. Punjab, which witnessed terrorism in 1980s and 1990s, has around 3.6 lakh active gun licences, most of which were issued during the two decades wherein militancy had engulfed the state.

RECYCLING OF SHIPS BILL

Parliament passed a landmark "The Recycling of Ships Bill 2019" for Safe and Environmentally Sound Recycling of Ships in India. Passing of this Bill is a giant step and historical moment in the Indian Maritime arena and will have far reaching effects in

Indian Ship Recycling industry. The existing Shipbreaking Code (revised), 2013 and the provisions of the Hong Kong Convention, 2009 are dovetailed in this Bill.

What

1. There are 53,000 merchant ships globally. Every year 1,000 are recycled and 300 are recycled in India, which is 30 percent of the global recycling.
2. Now after nod to Recycling Bill, we expect it to touch 60 per cent as the bill provides for acceding to the Hong Kong International Convention for Safe and Environmentally Sound Recycling of Ships, 2009. We expect ships for recycling from many nations.
3. Currently, India recycles 70 lakh gross tonnage of ships per annum, while Bangladesh's contribution is 68 lakh gross tonnage.
4. Pakistan scraps ships worth 37 lakh gross tonnage, while China accounts for 34 lakh gross tonnage of recycling.
5. Together, these four countries account for 90 per cent of the ships recycled globally. Now that Parliament has given nod to the Recycling Bill, India eyes 60 per cent of the global share as many countries will be sending ships here after India ratified the global convention.
6. Ship recycling's contribution to GDP is USD 1.3 billion (about Rs 9,200 crore) at present, which is expected to almost double to USD 2.2 billion (about Rs 15,600 crore).
7. Terming the passing of the Bill as a giant step and a historical moment in the Indian maritime arena, Mandaviya said it will have far reaching effects on the ship recycling industry.
8. The existing Shipbreaking Code (revised), 2013 and the provisions of the Hong Kong Convention, 2009 are dovetailed in this Bill and upon becoming Act, it will ensure environment friendly recycling process of ships and adequate safety of the yard workers.
9. With the enactment of this bill, India will set global standards for safe and sound environmentally-friendly recycling of ships, as well as ensure adequate safety of the yard workers.
10. The issue of environmental and workers' safety have been adequately addressed in this bill and both the issues are the soul of the bill.
11. Hoping for increase in the business, a large number of recycling plots, especially at Alang in Gujarat, are gearing up and obtaining Statement of Compliance (SOC) with the Hong Kong Convention.
12. The Bill is expected to raise the brand value of ship recycling yards located at Alang in Gujarat, Mumbai Port, Kolkata Port and Azhikkal in Kerela.

The Key Benefits of the bill:

1. The bill will harbinger significant increased number of global ships entering into Indian Shipyards for Recycling.
2. Recycling of Ships will boost business & employment opportunities and strengthen **India's position in the recycling industry.**
3. It will raise the brand value of our Ships Recycling Yards located at Alang in Gujarat, Mumbai Port, Kolkata Port & Azhikkal in Kerela.
4. **10% of country's Secondary steel needs, as an outcome of Recycling of Ships, will be met in an eco-friendly manner.**
5. Ships recycling facilities will become compliant to International standards and Ships will be recycled only in such authorised facilities.
6. The tremendous growth of business activities **will contribute to the country's GDP.**

ILP EXTENDED TO MANIPUR

The Inner line permit (ILP) regime was extended to Manipur on 11 December 2019 with President Ram Nath Kovind signing the order in this effect. The decision comes two days after Union Home Minister Amit Shah announced in Lok Sabha that the ILP would be extended to the northeastern State. A notification in this regard was issued by the Home Ministry.

What

1. Manipur is the fourth State after Arunachal Pradesh, Nagaland and Mizoram where the ILP regime is applicable.
2. To visit the ILP-regime States, outsiders, including people from other States of the country, needs to take permission.
3. An Inner Line Permit is a document that allows an Indian citizen to visit or stay in a state that is protected under the ILP system.
4. The system is in force today in three Northeastern states — Arunachal Pradesh, Nagaland and Mizoram — and no Indian citizen can visit any of these states unless he or she belongs to that state, nor can he or she overstay beyond the period specified in the ILP.
5. The concept comes from the colonial area. Under the Bengal Eastern Frontier Regulation Act, 1873, the British framed regulations restricting the entry and regulating the stay of outsiders in designated areas.

NIGHT TRIAL OF PRITHVI-2 MISSILE

India on 3 December 2019 successfully conducted another night trial of its indigenously developed nuclear-capable Prithvi-2 missile as part of a user trial for the armed forces from a test range in Odisha coast. The flight test of the surface-to-surface missile was carried out barely a fortnight after two back-to-back trials of the Prithvi-2 were **conducted successfully at night from the same base on November 20. Today's trial of Prithvi-2 missile was successful and the test met all parameters. It was a routine trial.**

What

1. The trial of the surface-to-surface missile, which has a strike range of 350 kilometres, was carried out from a mobile launcher of the Integrated Test Range (ITR) at Chandipur.
2. Prithvi-2 is capable of carrying 500-1,000 kilograms of warheads and is powered by liquid propulsion twin engines. The state-of-the-art missile uses an advanced inertial guidance system with manoeuvring trajectory to hit its target.
3. The missile was randomly chosen from the production stock and the entire launch activities were carried out by the Strategic Force Command (SFC) of the armed forces and monitored by the scientists of Defence Research and Development Organisation (DRDO) as part of a training exercise.

Achieved targets are:-

1. Prithvi series of missiles has been inducted.
2. Akash missile is under production and induction.
3. Nag with re-configured Nag Missile Carrier (NAMICA) cross country trial has been undertaken.
4. Trishul missile system has been completed as "Technology Demonstrator" due to delay in development of state-of-the-art technology and change in requirement of Armed Forces.
5. Agni re-entry "Technology Demonstrator" project has been completed successfully and technology is used for Agni series of missiles.

4. The trajectory of the missile was tracked by radars, electro-optical tracking systems and telemetry stations by the DRDO along the coast of Odisha.
5. The downrange teams onboard the ship deployed near the designated impact point in the Bay of Bengal monitored the terminal events and splashdown.
6. Already inducted into the armoury of the defence forces in 2003, the nine-metre-tall, single-stage liquid-fuelled **“Prithvi” is the first missile to have been developed by the DRDO** under the Integrated Guided Missile Development Programme (IGMDP).
7. Integrated Guided Missile Development Programme (IGMDP) was started in 1983 and completed in March 2012.
8. IGMDP was sanctioned to develop Prithvi, Trishul, Akash, Nag and a Technology Demonstrator Agni Missile.

INTERNATIONAL

KUALA LUMPUR SUMMIT

Pakistan Prime Minister Imran Khan attend the Kuala Lumpur Summit 2019 in Malaysia that would provide him an opportunity to exchange views and find solution to the challenges facing the Muslim world particularly governance, development, terrorism and Islamophobia, the Foreign Office said. The Kuala Lumpur (KL) Summit held on December 18-20 and is an initiative of Malaysian Prime Minister Mohamad Mahathir together with the participation of leaders, scholars and intellectuals to exchange views on the current challenges and to work together to address them.

What

1. Prime Minister Imran Khan participated in the KL Summit on the invitation of Prime Minister of Malaysia Dr Mohamad Mahathir.
2. The KL Summit would provide Pakistan with the opportunity to exchange views and find solutions to the challenges facing the Muslim world particularly governance, development, terrorism and Islamophobia.
3. Prime Minister Khan is also scheduled to reconvene the first-ever Global Refugee Forum (GRF) in December in Geneva.
4. GRF is the first major meeting on refugees of the 21st century and will be hosted by the United Nations High Commissioner for Refugees (UNHCR) on December 17 and 18.
5. **The GRF is being organised in recognition of Pakistan’s generosity, hospitality and compassion in hosting Afghan Refugees for over 40 years.**
6. Japan is well aware of how much Pakistan has suffered and sacrificed in its counter terrorism efforts. Our counter terrorism contributions were publicly acknowledged by the then Japanese Foreign Minister Taro Kono (now Defence Minister) during his visit to Pakistan in January 2018.
7. India and Japan recently in a joint statement under their new framework of two-plus-two dialogue voiced serious concern over the threat posed to regional peace and **security by terror networks operating from Pakistan and asked it to take “resolute and irreversible” action to contain terrorism.**
8. On August 5, India revoked Article 370 of the Constitution removing special status to Jammu and Kashmir, evoking sharp response from Pakistan.
9. Pakistan expelled the Indian High Commissioner soon after deciding to downgrade diplomatic ties with New Delhi.
10. India has categorically told the international community that its move to scrap Article 370 of the Constitution was an internal matter and has also advised Pakistan to accept the reality.

KL Summit

1. The December 18-21 gathering held at the Kuala Lumpur Convention Centre (KLCC), located near the iconic Petronas Twin Towers in downtown Kuala Lumpur.
2. The Kuala Lumpur Summit aims to, among others, to deliberate and find new and workable solutions for problems afflicting the Muslim world, and contribute towards improving the state of affairs of Muslims and Muslim nations.
3. The summit also seeks to form a network between Islamic leaders, intellectuals, scholars and thinkers from around the world, and revive the Islamic civilisation.

Flashback

1. On 17 and 18 December 2019, UNHCR, the UN Refugee Agency and the Government of Switzerland will jointly host in Geneva a world meeting on refugees, the first-ever Global Refugee Forum (GRF).
2. The two-day global conference is the first gathering at the Ministerial level to follow up on the practical implementation of the Global Compact on Refugees, affirmed at the UN in New York in December 2018.
3. The aim of the Global Refugee Forum is to accelerate actions by governments, the private sector, international institutions and organisations, the non-governmental sector, and civil society in implementing the new Global Compact on Refugees.
4. The Global Refugee Forum is meant to generate impactful commitments and other pledges from these actors, geared towards making tangible, long-term policy and practice shifts to improve the lives of refugees and host communities worldwide.
5. The Global Refugee Forum will also be an occasion for the international community to showcase and exchange good practices at national, regional or global levels.
6. The first Global Refugee Forum will focus on six thematic areas: arrangements for burden and responsibility-sharing, education, jobs and livelihoods, energy and infrastructure, solutions, and protection capacity.

WORLD'S NEWEST NATION

The South Pacific region of Bougainville voted overwhelmingly to **become the world's** newest nation by gaining independence from Papua New Guinea, results showed on December 11. Bougainville Referendum Commission Chairman Bertie Ahern was cheered when he announced that more than 98% of valid ballots favored independence. The only other option in the vote was greater autonomy from Papua New Guinea.

What

1. The referendum is nonbinding and independence would then need to be negotiated between leaders from Bougainville and Papua New Guinea.
2. The final say would then go to lawmakers in the Papua New Guinea Parliament. The process of becoming a separate nation could take years to achieve.
3. Around 85% of eligible voters cast more than 181,000 ballots in two weeks of voting.
4. The referendum is a key part of a 2001 peace agreement that ended a civil war in which at least 15,000 people died in the cluster of islands to the east of the Papua New Guinea mainland.
5. The violence in Bougainville began in the late 1980s, triggered by conflict over an enormous open-cast copper mine at Panguna.

6. The mine was a huge export earner for Papua New Guinea, but many in Bougainville felt they received no benefit and resented the pollution and disruption of their traditional way of living.
7. The mine has remained shut since the conflict. Some believe it could provide a revenue source for Bougainville should it become independent.

MYANMAR REJECTS GENOCIDE CLAIMS IN UN COURT

Former peace icon Aung San Suu Kyi told the **UN's top court there was no "genocidal intent" in Myanmar's crackdown on Rohingya Muslims**, despite admitting that the army may have used excessive force. The 1991 Nobel peace laureate rejected **the "misleading and incomplete" allegations by The Gambia** that Myanmar's 2017 military operation amounted to an attempt to exterminate the Rohingya.

What

1. Thousands of people were killed and raped and around 740,000 Rohingya fled to neighbouring Bangladesh after the Myanmar military launched a huge offensive that it said was in response to attacks by local militants.
2. **Once hailed worldwide as a rights icon for her defiance of Myanmar's junta**, Suu Kyi was this time on the side of the generals when she opened the majority-Buddhist **nation's defence** at the International Court of Justice (ICJ) in The Hague.
3. The Nobel Peace Prize laureate responded to widespread claims that Myanmar (formerly Burma) committed atrocities against Muslim Rohingya.
4. Myanmar has always insisted it was tackling an extremist threat in Rakhine state, and Ms Suu Kyi maintained that stance, describing the violence as an "internal armed conflict" triggered by Rohingya militant attacks on government security posts.
5. Conceding that Myanmar's military might have used disproportionate force at times, she said that if soldiers had committed war crimes "they will be prosecuted".
6. Ms Suu Kyi - once celebrated internationally as a champion of democracy - has been de facto leader of Myanmar since April 2016, before the alleged genocide began. She does not have control over the army, but has been accused by the UN investigator of "complicity" in the military clearances.
7. She told the court her country was committed to the safe repatriation of people displaced from Rakhine, and urged the court to avoid any action that could aggravate the conflict.

Why is Myanmar in court now?

1. The Gambia, a small Muslim-majority west African nation, brought the case to the ICJ on behalf of dozens of other Muslim countries.
2. All that The Gambia asks is that you tell Myanmar to stop these senseless killings, to stop these acts of barbarity that continue to shock our collective conscience, to stop this genocide of its own people, The Gambia's Attorney General and Justice Minister, Abubacarr M Tambadou, told the court.
3. His country had acted after he visited a Rohingya refugee camp in Bangladesh and heard of killings, rape and torture.

UK'S BREXIT ELECTION

British Prime Minister Boris Johnson on 13 December 2019 won the historic UK General Election as his Conservative Party crossed the 326-mark required for a majority in Parliament, marking a victory for his "Get Brexit Done" message and setting the UK on course to leave the European Union (EU) in the New Year. Johnson, who won

his own seat in London's Uxbridge and South Ruislip, hailed the projected win for his **Conservative Party as a “powerful new mandate” to move forward with his deal to leave the 28-member economic bloc.**

What

1. It does look as though this One Nation Conservative government has been given a powerful new mandate to get Brexit done – and not just to get Brexit done but to unite this country and to take it forward, said the 55-year-old Tory leader in his winner's speech after the results in his constituency were declared.
2. While stressing that the final tally is yet to be confirmed, he said the election would **give him the “chance to respect the democratic will of the British people, to change this country for the better and to unleash the potential of the entire people of this country”.**
3. A perceived anti-India stance since the party passed an emergency motion calling for international intervention in Kashmir is also likely to have swayed some of its traditional connect with Indian diaspora voters.
4. The Conservatives have taken a string of former Labour strongholds, with Labour having lost seats in the north of England, Midlands and Wales in areas that voted to leave the EU in the 2016 referendum.
5. The first sign of what the results held in store came with a definitive exit poll released at the close of voting on 12 December 2019, which predicted the Johnson-led Conservative Party winning 368 seats, with the Labour Party way down at 191 in a predominantly Tory blue versus Labour red contest.
6. It resulted in the UK's first December General Election in nearly a century and saw voters brave a cold and blustery winter's day to queue outside polling stations to **cast their vote in what had been pegged as the most important election “in a generation”.**
7. This also marked the UK's third General Election in less than five years and the second since the UK voted to leave the EU in the June 2016 referendum.

What is Brexit?

1. Brexit - British exit - refers to the UK leaving the EU.
2. The EU is an economic and political union involving 28 European countries. It allows free trade and free movement of people, to live and work in whichever country they choose.
3. The UK joined in 1973 (when it was known as the European Economic Community). If the UK leaves, it would be the first member state to withdraw from the EU.

RUSSIA-CHINA GAS PIPELINE

Russia and China on 2 December 2019 launched a giant gas pipeline linking the countries for the first time, one of three major projects aimed at cementing Moscow's role as the world's top gas exporter. Russian leader Vladimir Putin and Chinese counterpart Xi Jinping hailed the "Power of Siberia" pipeline as a symbol of cooperation.

What

1. The project served as a model of cooperation and that "the development of Sino-Russian ties is and will be a foreign policy priority for both our nations".
2. The ceremony featured hard-hatted gas workers and videos showing the pipeline's difficult path from remote areas of eastern Siberia to Blagoveshchensk on the Chinese border.
3. The 3,000-kilometre (1,850-mile) pipeline -- which Putin has called "the world's biggest construction project" -- will supply China with 38 billion cubic metres (1.3 trillion cubic feet) of gas annually when it is fully operational in 2025.

4. Russia and China signed a 30-year, \$400 billion deal for its development in 2014, in the biggest ever contract for Gazprom.
5. Gazprom stressed that the pipeline ran through "swampy, mountainous, seismically active, permafrost and rocky areas with extreme environmental conditions".
6. The pipeline is part of Russia's efforts to develop ties with Asia -- in particular top energy importer China -- amid longstanding tensions with the West.

KHYBER PASS ECONOMIC AGREEMENT

Pakistan and the World Bank has signed a project agreement worth \$406.6 million for financing the Khyber Pass Economic Corridor (KPEC) project with an aim to promote economic development. The signing ceremony was held at the Economic Affairs Division, Islamabad. The project is aimed at constructing a 48km four-lane, dual carriageway, high-speed and access-controlled motorway from Peshawar to Torkham border point with Afghanistan in a bid to promote economic development and ensure uplift of the areas adjoining the expressway and falling in Khyber-Pakhtunkhwa.

What

1. The project envisages public-private partnership and private financing for developing clusters of economic activity, economic zones and expressways.
2. The connecting transport infrastructure and economic zones would provide a strong foundation for the private business to invest in these zones.
3. The global integration of South and Central Asia is intertwined with the Khyber Pass, which has served as the key node in trade for hundreds of years.
4. The expressway between Peshawar and Kabul through the Khyber Pass represents a section of Corridors 5 and 6 of the Central Asia Regional Economic Cooperation (Carec).
5. Corridor 5, which runs through Pakistan, has the potential to provide the shortest link between the landlocked countries of Afghanistan, Tajikistan, Uzbekistan and the Arabian Sea. Corridor 6 provides access to Europe, the Middle East and Russia. The KPEC will finance the Peshawar-Torkham expressway portion of the Corridor 5.
6. The Peshawar-Torkham expressway will reduce transit time and costs for regional and international trade, transiting the Khyber Pass and extend till Karachi-Lahore-Islamabad-Peshawar Trans-Pakistan Expressway system. It will be developed as an integral part of the planned Peshawar-Kabul-Dushanbe motorway.
7. The improved regional connectivity through this corridor would not only facilitate commercial traffic and expand economic activities between Pakistan and Afghanistan but will also promote private-sector development along the corridor. It is expected to generate up to 100,000 new jobs in Khyber-Pakhtunkhwa.

ECONOMY

INDIA IN E-COMMERCE INDEX 2019

India has ranked 73rd out of 152 countries in a business-to-consumer E-commerce index that measures an economy's preparedness to support online shopping, moving seven places up in the list. The United Nations Conference on Trade and Development's Business-to-Consumer (B2C) E-commerce Index 2019 has been topped by the Netherlands for the second consecutive year. European nations hold eight of the top 10 spots on the index, which ranks 152 countries on their readiness to engage in online commerce. The only non-European countries on the top 10 list are Singapore (3) and Australia (10).

What

1. The index scores 152 nations on their readiness for online shopping, worth an estimated USD 3.9 trillion globally in 2017, up 22 per cent from the previous year.
2. India is ranked 73rd in the 2019 index, slightly improving its position from 80 in 2018 and 83 in 2017. According to the report, in India Internet shoppers as a share of Internet users were 11 per cent and Internet shoppers as a share of population 3 per cent in 2017.
3. Faring better than India are countries such as Iran, ranked 42nd, Kazakhstan (57), Azerbaijan (62), Vietnam (64) and Tunisia (70). Switzerland is ranked second on the list, followed by Singapore, Finland, the United Kingdom, Denmark, Norway, Ireland, Germany and Australia.
4. Countries are scored on the access to secure internet servers, the reliability of postal services and infrastructure, and the portion of their population that uses the internet and has an account with a financial institution or mobile-money-service provider.
5. The 10 developing countries with the highest scores are all from Asia and classified as high-income or upper middle-income economies. At the other end of the spectrum, least developed countries occupy 18 of the 20 bottom positions.
6. Out of the 20 economies with the lowest value in the 2019 index, 18 are Least Developed Countries, with Congo and Syria being the only non-LDCs in this group. Comoros, Burundi, Chad and Niger are last in the index.
7. Our B2C index shows how real and worrying the digital gap between developed and developing countries, director of UNCTAD's unit that prepares the annual index.
8. There is an urgent need to help less prepared countries improve their infrastructure and build trust among their population.
9. Otherwise, their businesses and people will miss out on the opportunities offered by the digital economy, and they will be less prepared to deal with various challenges.
10. UNCTAD's index also highlights the need to improve the reliability and availability of statistics, especially in developing countries. For example, an internet user data for 2018 were available for less than half of the countries at the time of index calculations. And the latest data on bank and mobile-money accounts are from 2017.

The index is calculated as the average of four indicators

1. Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+) (Source: the World Bank)
2. Individuals using the Internet (% of population) (Source: International Telecommunication Union, ITU)
3. Postal Reliability Index (Source: Universal Postal Union, UPU)
4. Secure Internet servers (per 1 million people) (Source: Netcraft retrieved from World Bank)

CHAIN BASE MECHANISM FOR GDP

The government is considering moving to the chain base method of calculating gross domestic product, from the current practice of a fixed base year to better reflect changes in the economy and prevent controversies. The ministry of statistics and programme implementation is exploring the idea of a chain base index, where national account statistics or GDP estimates are compared with those of the previous period, instead of a fixed base revised every five years.

What

1. The chain base method will capture structural changes in the economy faster by allowing new activity and items to be added every year.
2. Current GDP estimates are based on data for 2011-12 and are due for an update.
3. This is the international practice – first reduce your timeline from a 10-year revision to a five-year revision, which we shifted to but the ideal is every year. This improves the indicator.
4. The advantage is that new items and factories which are producing can be introduced. In a five-year revision, it takes 7-8 years to get reflected.
5. While discussions on changes are on, no time-frame has been set for a shift. The statistics office junked the idea of shifting to 2017-18 as base year as it was not considered a normal year.
6. The government faced flak when the GDP Series was revised to 2011-12 from 2004-05 and released in 2015 and attracted criticism after GDP growth for FY17, the year of demonetisation, was revised to 8.2% from 7.1%.
7. Besides the new base year, the methodology was changed to capture information on the corporate sector from the ministry of corporate affairs MCA-21 database.

PARLIAMENT OKAYS CORPORATE TAX CUT

Parliament on 5 December 2019 approved the Taxation Laws (Amendment) Bill, 2019 that replaces an ordinance promulgated to cut the base corporate tax rate, with Finance Minister Nirmala Sitharaman stating that mining companies, software developers and book printers will not be eligible for the lower 15 per cent rate available for new manufacturing companies. Lok Sabha had earlier this week passed the bill and the Upper House returned it on 5 December 2019 without making any changes.

Key Features of the Bill

1. The Taxation Laws (Amendment) Bill, 2019 will provide the domestic companies with an option to pay tax at the rate of 22 percent, as long as they do not claim certain deductions under the Income Tax Act.
2. Presently, the domestic companies with an annual turnover of up to Rs 400 crore pay income tax at the rate of 25 percent and other domestic companies have to pay tax at the rate of 30 percent.
3. The Bill also provides the new domestic manufacturing companies with an option to pay income tax at the rate of 15 percent, as long as they do not claim certain deductions. The new domestic manufacturing companies must be set up and registered after September 30, 2019 and start manufacturing before April 1, 2023.
4. The domestic companies have the right to opt for the new reduced tax rates in the fiscal year 2019-20 or any other fiscal year in the future. Once the company makes the choice of the tax rate, it will apply for all subsequent years.
5. The provisions regarding payment of Minimum Alternate Tax (MAT) will not be applicable to companies opting for the new tax rates. The provisions regarding MAT credit will also not apply to the domestic companies opting for the new rates.
6. MAT is the minimum tax, which a company is required to pay, in case its normal tax liability falls below a certain limit after claiming deductions.
7. The tax ordinance reduced the rate of MAT for companies not opting for the new tax rates from 18.5 percent to 15 percent with effect from the fiscal year 2019-20.
8. The new taxation bill amends the provision and makes the reduced rate of MAT effective from the fiscal year 2020-21.

UNIFIED BODY TO REGULATE IFSCS

The Lok Sabha passed a bill to set up a unified authority for regulating all financial activities in international financial services centres (IFSCs) in the country. The first IFSC in India was set up at Gujarat International Finance Tec-City (GIFT) in Gandhinagar, Gujarat. The unified authority will act as a single-window for regulating various financial activities in the IFSC.

What

1. All the laws of land, including the Prevention of Money Laundering Act, will apply, adding the unified authority which will be independent would be subject audit by the CVC and the CAG.
2. Together with this, it will define various financial products including IT enabled services in the financial sector.
3. The government has already given some tax concession to help this centre develop as global financial hub in line with London and Singapore.
4. There will tax holiday only for 10 years in the IFSC, it will not become a tax haven.
5. The International Financial Services Centres Authority Bill, 2019, was introduced in the Lok Sabha after withdrawal from the Rajya Sabha.
6. Currently, the banking, capital markets and insurance sectors in IFSC are regulated by multiple regulators -- the RBI, the Securities and Exchange Board of India (SEBI), the Pension Fund Regulatory and Development Authority (PFRDA) and the Insurance Regulatory and Development Authority of India (IRDAI).
7. The bill seeks to amend 14 Acts, including the SEBI Act, the IRDA Act and the PFRDA Act.
8. The dynamic nature of business in IFSCs necessitates a high degree of inter-regulatory coordination and it also requires clarifications and frequent amendments in the existing regulations governing financial activities in IFSC.
9. On the criticism on why it is being set up in Gandhinagar, the gov. said, the Gujarat government had applied for setting up financial sector Special Economic Zone and the approval given by the then Congress-led UPA in 2011.
10. There is no limit on how many IFSCs can be set up but others can come up after first centre (GIFT City) becomes fully operational.

SCIENCE AND TECHNOLOGY

LONGEST UN CLIMATE TALKS END

Marathon international climate talks ended on 15 December 2019 with negotiators postponing until next year a key decision on how to regulate global carbon markets. After two weeks of negotiations in Madrid on tackling global warming, delegates from almost 200 nations passed declarations calling for greater ambition in cutting planet-heating greenhouse gases and in helping poor countries that are suffering the effects of climate change. But despite holding the longest climate talks ever in 25 nearly annual editions **they left one of the thorniest issues for the next summit in Glasgow, in a year's time.**

What

1. Carbon markets put a price on emission of carbon dioxide, the main greenhouse gas, and allows countries or companies to trade emissions permits that can be steadily reduced — encouraging the uptake of low-emission technologies.

2. Countries from Europe and elsewhere had said that no deal on how to govern the exchange of carbon credits was better than a weak one that could undermine a dozen or so existing regional carbon mechanisms.
3. The weak rules on a market based mechanism, promoted by Brazil and Australia, that would have undermined efforts to reduce emissions has been shelved, said Mohamed Adow, director of Power Shift Africa, a campaign group.
4. The talks have been accompanied at times by angry protests from indigenous and environmental groups, both inside and outside the venue. The demonstrations reflected growing frustration, particularly among young people, at the slow pace of government efforts to curb climate change.
5. Among the documents that the U.N. meeting passed 15 December 2019 was the “Chile-**Madrid Time for Action**” declaration calling on countries to improve their current pledges to reduce greenhouse gas emissions.
6. That is needed to come in line with the 2015 Paris Agreement target of avoiding a temperature increase of more than 1.5 degrees Celsius (2.7 degrees Fahrenheit) by the end of the century. So far, the world is on course for a 3- to 4-degree Celsius rise, with potentially dramatic consequences for many countries.
7. Countries also agreed to designate funds for the most vulnerable countries to compensate them for the effects of extreme weather events, one of the most pressing issues for small island states.
8. **But environmental groups and activists accused the world’s richer countries of showing little commitment to seriously tackling climate change.**
9. Chile chaired the talks, which had to be quickly moved to Madrid amid violent anti-government protests back home. Despite the pressure to deliver a positive outcome, activists criticized the Chilean government of President Santiago Piñera for holding on to coal-fired power plants until 2040.
10. Helen Mountford from World Resources Institute, an environmental think tank, said **the talks “reflect how disconnected country leaders are from the urgency of the science and the demands of their citizens in the streets”.**

FUND FOR NETRA

The Centre has proposed Rs 33.3 crore for ISRO's 'Project Netra' for securing Indian satellites from space debris and other dangers, according to documents related to supplementary demand for grants. Finance minister Nirmala Sitharaman had moved a resolution for the grants for which the Lok Sabha granted approval last week. In September, India launched the early warning system Netra (Network for Space Objects, Tracking, and Analysis) to secure its satellites and other assets in space at an estimated cost Rs 400 crore.

What

1. Scientists say 50 years of human space exploration has led to the creation of junk around Earth's orbit, posing serious traffic risks to man-made satellites.
2. India has 15 communication satellites active in the geostationary orbit, 13 remote-sensing satellites active in low-earth orbit (2,000 km radius) and eight navigation satellites in medium-earth orbit. Apart from these, there are a number of smaller satellites present in the space.
3. Former director of Satish Dhawan Space Centre M Y S Prasad said India is a responsible space power and monitoring capability is necessary for protection of space assets.
4. The NETRA project would provide India with the same capability as the US and Russia to assess threats from space debris and other hazards.

5. According to a report, about 17,000 man-made objects are monitored in space of which 7 per cent are active objects. After a time, these objects become inactive and collide with each other while revolving in space.
6. Every year, there are many incidents of objects colliding in space. As a result, small pieces of debris rotate at extremely fast speeds. Dead satellites and other debris present in space exist in the Earth's orbit for many years and these debris can damage any active satellite.

Flashback

1. The Indian Space Research Organisation (ISRO) **was initiated** 'Project NETRA' **on September 2019**— an early warning system in space to detect debris and other hazards to Indian satellites.
2. The project is estimated to cost ₹400 crore, when in place, will give India its own capability in space situational awareness (SSA) like the other space powers — which is used to **'predict' threats from debris to Indian** satellites. It also goes so far as to serve as an unstated warning against missile or space attack for the country.
3. The space agency says our SSA will first be for low-earth orbits or LEO which have remote-sensing spacecraft.
4. Under NETRA, or Network for space object Tracking and Analysis, the ISRO plans to put up many observational facilities: connected radars, telescopes; data processing units and a control centre.
5. They can, among others, spot, track and catalogue objects as small as 10 cm, up to a range of 3,400 km and equal to a space orbit of around 2,000 km.

PARKER SPACECRAFT UNLOCKS SOLAR MYSTERY

NASA's Parker Solar Probe -- which has flown closer to the Sun than any spacecraft ever -- has beamed back the first observations from its close encounter with the Sun, revealing a "spectacular trove" of data about the solar wind and space weather. The data from the probe, published in the journal Nature, offers clues to long-standing mysteries, including why the Sun's atmosphere, known as the corona, is hundreds of times hotter than its surface, as well as the precise origins of the solar wind.

What

1. Since its launch in August 2018, Parker Solar Probe has completed three of the 24 planned passes through never-before-explored parts of the Sun's atmosphere, using cutting-edge scientific instruments to measure the environment around the spacecraft.
2. These findings reveal new information about the behaviour of the material and particles that speed away from the Sun, bringing scientists closer to answering fundamental questions about the physics of our star.
3. In the quest to protect astronauts and technology in space, the information Parker has uncovered about how the Sun constantly ejects material and energy will help scientists re-write the models used to understand and predict the space weather around our planet. The findings will also help understand the process by which stars are created and evolve.
4. Observing the Sun up close rather than from a much greater distance is giving us an unprecedented view into important solar phenomena and how they affect us on Earth, and gives us new insights relevant to the understanding of active stars across galaxies.

5. One of the main goals of the Parker Solar Probe is to discover the source of the "slow" solar wind and how it is accelerated in the hot atmosphere of the Sun -- the 1 million-degree Celsius solar corona.
6. The solar wind consists of charged particles, mostly protons and helium nuclei, travelling along the Sun's magnetic field lines.
7. The so-called "fast" solar wind, clocked at between 500 and 1,000 kilometres per second, is known to come from large holes in the solar corona at the Sun's north and south poles.
8. However, the origin of the "slow" solar wind, which is denser but about half the speed of the "fast" solar wind, is more poorly understood.
9. Thanks to extreme ultraviolet mapping of the Sun by other spacecraft, the researchers were able to trace the wind and the magnetic fields back to a source -- coronal holes - - that strongly suggests that these holes are the source of the slow solar wind.
10. Coronal holes, which are related to sun spots, are areas that are cooler and less dense than the surrounding corona.

BLACK HOLES HAVE WEAKER MAGNETIC FIELDS

Black holes, known for their intense gravitational pull capable of gobbling up entire stars, may have significantly weaker magnetic fields than previously thought, a study has found. A 64-kilometre-wide black hole 8,000 light years from Earth named V404 Cygni has yielded the first precise measurements of the magnetic field that surrounds the deepest wells of gravity in the universe. Researchers from the University of Florida (UF) in the US found the magnetic energy around the black hole is about 400 times lower than previous crude estimates.

What

1. The measurements bring scientists closer to understanding how black holes' magnetism works, deepening our knowledge of how matter behaves under the most extreme conditions, knowledge that could broaden the limits of nuclear fusion power and GPS systems.
2. The findings, published in the journal Science, will help scientists solve the half-century-old mystery of how 'jets' of particles travelling at nearly the speed of light shoot out of black holes' magnetic fields, while everything else is sucked into their abysses.
3. Our surprisingly low measurements will force new constraints on theoretical models that previously focused on strong magnetic fields accelerating and directing the jet flows.
4. Researchers developed the measurements from data collected in 2015 during a black hole's rare outburst of jets.
5. The event was observed through the lens mirror of the 34 -foot Gran Telescopio Canarias, the world's largest telescope, located in Spain.
6. Smaller jet-producing black holes, like the one observed for the study, are the rock stars of galaxies. Their outbursts occur suddenly and are short-lived.
7. The 2015 outbursts of V404 Cygni lasted only a couple of weeks. The previous time the same black hole had a similar episode was in 1989.

WIND FLOW PATTERN ON MARS

NASA scientists have mapped the global wind circulation patterns in the upper atmosphere of Mars- 120 to 300 kilometers above the Red Planet's surface. The researchers, including those from the University of Maryland, Baltimore County (UMBC) in the US, reprogrammed probes aboard NASA's Mars Atmosphere and Volatile Evolution (MAVEN) spacecraft to collect wind measurements on the Red Planet.

What

1. The reprogramming allowed an instrument called the Natural Gas and Ion Mass Spectrometer (NGIMS) aboard MAVEN -- that was normally stationary -- to "swing back and forth like a windshield wiper fast enough.
2. They added that this tweaking enabled them to gather data on the winds flowing across the Martian surface.
3. The study, published in the journal Science, was based on data collected by MAVEN two days per month from 2016 to 2018.
4. The researchers said the wind flow patterns observed in the Martian upper atmosphere matched what was predicted from theoretical models. The study noted that the average circulation patterns from season to season were very stable on Mars.
5. However, the scientists said the shorter-term variability of winds in the upper atmosphere was greater than anticipated. On Mars, the average circulation is steady, but if you take a snapshot at any given time, the winds are highly variable.
6. Another insight gleaned from the study is that the wind hundreds of kilometers above the Red Planet's surface still contained information about landscapes below such as its mountains, canyons, and basins.
7. As the air mass flows over those features, "it creates waves--ripple effects -- that flow up to the upper atmosphere," and can be detected by MAVEN and NGIMS.
8. The researchers believe the wind waves on Mars, called "orthographic waves," last so long unchanged because of two reasons.

Flashback

1. The Mars Atmosphere and Volatile Evolution (MAVEN) mission is part of NASA's Mars Scout program, funded by NASA Headquarters.
2. Launched in Nov. 2013, the mission will **explore the Red Planet's upper** atmosphere, ionosphere and interactions with the sun and solar wind.
3. Scientists will use MAVEN data to determine the role that loss of volatiles from the Mars atmosphere to space has played through time, giving insight into the history of Mars' atmosphere and climate, liquid water, and planetary habitability.

MISCELLANEOUS

UN GLOBAL CLIMATE ACTION AWARD

IT services major Infosys Ltd was presented with the United Nations Global Climate Action Award in the **'Climate Neutral Now' category** at the UN Climate Change Conference in Madrid, Spain. The Bengaluru-headquartered company said it is the first Indian corporate to receive the award. Every year, the UN honours outstanding achievements in combating climate change through the Climate Action Awards.

What

1. We won the award for our carbon neutral programme, which delivers scalable, innovative and practical climate actions that addresses climate change and helps drive progress on many other sustainable development goals, such as gender equality, health and well-being and economic opportunity, Infosys said.
2. Manager of the UN Climate Change Global Climate Action Programme Niclas **Svenningsen said in an Infosys statement, "Infosys' journey to carbon neutrality is truly inspiring."**
3. The UN Global Climate Action Awards are spearheaded by the Momentum for Change initiative at UN Climate Change.

4. The projects are recognized as innovative solutions that not only address climate change, but also help drive forward progress on many other sustainable development goals, for example, innovation, gender equality and economic opportunity.
5. The 2019 awards were selected by an international Advisory Panel as part of UN **Climate Change's Momentum for Change initiative, which is implemented with the support of The Rockefeller Foundation, and operates in partnership with the World Economic Forum, donors supporting the implementation of the UN Climate Change's Gender Action Plan and Climate Neutral Now.**

MNREGA JOBS TO DIFFERENTLY-ABLED PERSONS

Chhattisgarh is ranked sixth in the country in terms of providing employment to differently-abled persons under Mahatma Gandhi Rural Employment Guarantee Act (MNREGA), an official said on 8 December 2019. Between April and November this year, the total number of differently-abled persons working in MNREGA in the state stood at 22,966.

What

1. The top states in this connection are Andhra Pradesh, Tamil Nadu, Telangana, Madhya Pradesh and West Bengal.
2. During 2018-19, the number of differently-abled persons employed under the scheme in Chhattisgarh was 30,702, all of them provided cumulative employment of 8,90,264 days.
3. The employment opportunities would not only boost confidence and morale of differently-abled people but will also make their life easier.
4. The PwDs are provided work as per their skill and capacity, and these include arranging drinking water facility, baby-sitting, plantation, canal digging, filling potholes, loading-unloading sand in trolleys etc under the scheme.

Flashback

1. MGNREGA is the largest work guarantee programme in the world, was enacted in 2005 with the primary objective of guaranteeing 100 days of wage employment per year to rural households.
2. It aims at addressing the causes of chronic poverty through the 'works' (projects) that are undertaken, and thus ensuring sustainable development.
3. There is an emphasis on strengthening the process of decentralisation through giving a significant role to Panchayati Raj Institutions (PRIs) in planning and implementing these works.

RENEWABLE ENERGY GENERATING STATE

Tamil Nadu has overtaken Karnataka to become India's top renewable power generating state in FY20 (till October). Of the total renewable power generation in the country, nearly 17.2 per cent was from Tamil Nadu. According to Central Electricity Authority (CEA) data in 2019-20 (upto October) 85,774.92 million units (MU) of power was generated through renewable energy, of which 14,771.69 MU was generated by Tamil Nadu followed by Karnataka (14,730.08 MU), Gujarat (10,505.54), Andhra Pradesh (9,638.70), Maharashtra (8,942.55) and Telangana (3794.99).

What

1. Wind was the major source of renewable energy in the state. Of the total generation, 11,614.85 MU came from wind, followed by 2,733.37 MU from solar and the rest are from other sources.
2. Tamil Nadu's wind energy capacity is 8,480 MW, which is 24 per cent of the country's **total wind generation capacity.**

3. State is aiming to achieve 9,000 megawatt (MW) of solar power by 2023, as part of which a new Solar Policy had come into effect in 2019. At present, the total solar capacity is above 3,000 MW.
4. The policies and incentives offered by the government — bundling of wind power projects, accelerated depreciation, a Technology Upgradation Fund etc — have driven the **state's power-intensive** industries to invest in captive wind power plants, says industry representatives.
5. Wind generation peaks during the southwest and northeast monsoon months, followed by below average generation for the remaining months.
6. The state introduced banking of energy, which allows the cooperatives to supply to the grid when there is excess generation, in exchange for free supply during low generation periods.

Flashback

1. Central Electricity Authority (CEA) is an organization originally constituted under Section 3(1) of the repealed Electricity (Supply) Act, 1948, since substituted by Section 70 of the Electricity Act, 2003.
2. It was established as a part-time body in 1951 and made a full-time body in 1975. The functions and duties of CEA are delineated under Section 73 of the Electricity Act, 2003.
3. Central Electricity Authority seeks to achieve the vision by performing its statutory function by providing technical support base to all stakeholders in the power sector, to support the Ministry of Power for forming policies in the power sector, to make technical standards & regulations, to carry out project monitoring, to disseminate power sector information, to upgrade skills of human resources in the power sector of the country.

ICAR SIGN DEAL WITH NABARD

With a view to promote sustainable agriculture and climate resilient farming systems the Indian Council of Agricultural Research (ICAR) signed a Memorandum of Understanding (MoU) with the National Board of Agriculture and Rural Development (NABARD) to facilitate the action research (the research carried out with the active participation of farmers to provide solutions for the challenges) and up-scaling of the various technologies and innovative farmer models developed by the ICAR that includes the successful climate resilient practices, models and integrated and hi-tech farming practices in a participatory model through adoptive research on watershed platform.

What

1. The MoU is for taking up site-specific transfer of technologies under sustainable agriculture, integrated farming system, crop intensification, agro-forestry, plantation and horticulture, animal sciences, agri-engineering, etc., including post-harvest technologies.
2. Further, the ICAR through its large network will support the training and capacity building of channel partners and NABARD Officers.
3. The initiative will strengthen the competence of channel partners under the promotional and developmental programmes of NABARD technology transfer under the climate resilient agriculture, contingency and adaptation planning.
4. The ICAR will also help in the impact evaluation of the NABARD assisted projects, DPR preparation for climate change projects, farm mechanization, Agri-Incubation Centres / FPOs and resource conservation, etc.

5. The Indian Council of Agricultural Research (ICAR) is a premier organization in the country with the mandate of agriculture, research, extension and education **leading the country's National Agricultural Research and Extension System** with a large network of 113 institutes, 75 SAUs and CUs and 716 KVKs across the country.
6. ICAR with its network developed doable technologies in agriculture and allied sectors of horticulture, livestock, fisheries etc. and are being disseminated through various national and state level programmes, schemes and KVKs for the benefit of the farmers. HRD and Capacity building are also the core mandate of ICAR.
7. National Bank for Agriculture and Rural Development (NABARD) is a premier organization dealing with policy, planning and operations in the field of credit for agriculture and other activities in rural areas.

PACT SIGN FOR 5G IN INDIA

Optical fibre maker Sterlite Technologies on 10 December 2019 said it has entered into a pact with Indian Institute of Technology Madras for research and advancements in 5G communications technology in the country. Sterlite Technologies Ltd (STL) has signed a memorandum of understanding (MoU) with Indian Institute of Technology Madras for sponsoring a chair professorship in 5G, the company said in a filing to BSE. Announcement of the first occupant of the Chair Professorship will happen in the first quarter of 2020.

What

1. Through this partnership, STL and IIT Madras are committed to realise the enormous potential of 5G for customers and industry in India and global markets.
2. The Chair Occupant will work towards accelerating the advancements in 5G by **unifying IIT Madras' research and domain knowledge with STL's industry expertise in 5G** and end-to-end network connectivity.
3. The initiative will play a critical role in boosting innovation and developing young talent in the 5G domain.
4. With industry and academia getting together, this collaboration can be a cornerstone in discovering unique opportunities and making industrial relevance more prominent in academic research.

India's 5G journey

1. The government in 2017 had set up a high-level forum to evaluate and approve roadmaps and action plans to bring 5G in the country by 2020.
2. A steering committee chaired by Prof. A J Paulraj of Stanford University created seven task Forces including ones around Spectrum Policy, Regulatory Policy, Application, and Use Case Labs among others. The High-Level Forum report recommended establishing application and use case labs in India and developing locally tailored solutions.
3. The task force set up to devise a framework for 5G related Applications and Use Case Labs (UCL) recommended that UCLs be set up in each economic vertical with Agriculture, Health, Banking, and Railways UCLs to start in the first phase.
4. The government launched a three -**year program namely 'Building an End-to-End 5G Test Bed' to advance innovation and research into 5G which began in March 2018**, with a budget authorization of Rs 224 crore.

5. Sweden's Ericsson became the first gear vendor to launch a public access 5G testbed at IIT Delhi in July 2018 to develop new applications to allow the industry and relevant institutions to work on India specific usage scenarios and applications.
6. In May 2019, it briefly halted its work after its radiating spectrum license expired. Nokia, on the other hand, is developed 5G local use cases in partnership with enterprises and startups at its Bengaluru R&D center.
7. Huawei is also looking to establish its own testbed in India in partnership with institutes like IITs. It has started discussions with academia and telcos to set it up to test the technology and identify new use cases.
8. There has been uncertainty over Huawei and ZTE's participation in India's 5G field trials and commercial networks going forward.
9. Indian telecom operators had earlier this year sought clarity over the participation of Huawei in 5G field trials and permitting its equipment in their 5G networks.
10. The Indian government has already conveyed that it will not compromise on the security of its telecom networks and accords high priority to data sovereignty.