

My Notes....

NATIONAL

INDIA'S SECOND MOON MISSION

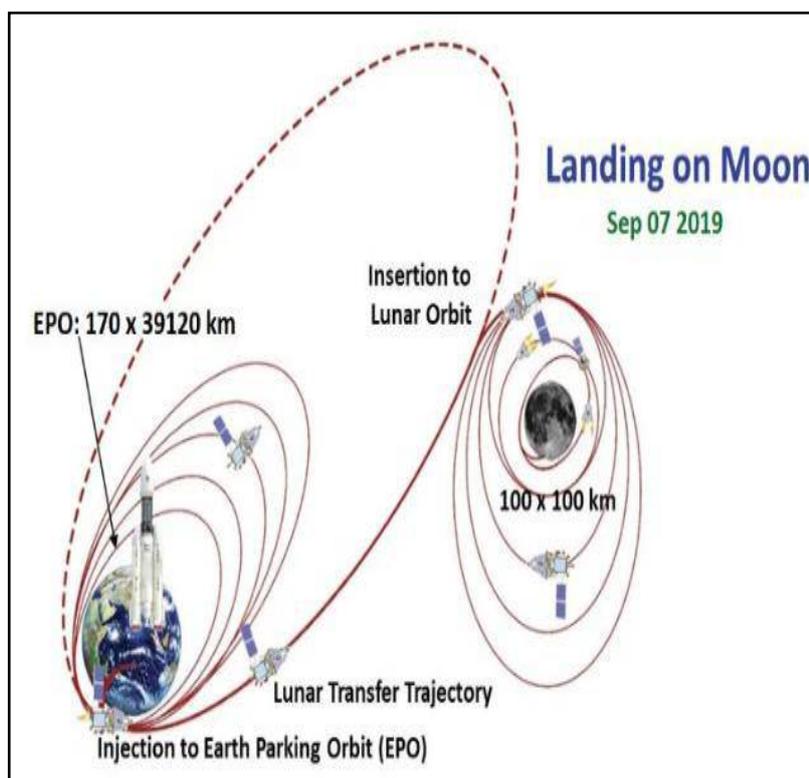
India's rocket carrying an orbiter, lander and a rover in a stepped up moon mission launched into space successfully from the Sriharikota launch pad on 22 July 2019. The Chandrayaan-2 is on course to place the country in a niche league of nations populated by the US, Russia and China that have successfully conducted a moon-landing. The lander will touch in the region of the south pole of the moon, an unexplored territory. The target is find more evidence of water, **clues about the moon's evolution** and work the natural satellite as a test bed for more space missions concerning the solar system.

What

1. Chandrayaan-II will primarily study the elements on the moon, map its topography through high-resolution pictures, study its minerals and most importantly, confirm sub-surface water/ice presence.

2. Advanced synthetic aperture radar in Chandrayaan-2 has the ability to look for water—identify the presence of water rise at depths of a few meters: an important input for sustaining a future human presence on the moon.

3. The launch vehicle, the GSLV Mk-3, is the **country's most** powerful rocket to date. The 640-tonne rocket, capable of carrying 4-tonne



- satellites, will place the mooncraft in the Earth Transfer Orbit approximately 16.2 minutes after take-off. This will be the first operational flight of GSLV-Mk-3.

4. The 1.4-tonne Lander, Vikram, will be alive for 14 earth days, or one day in the moon. It can communicate with the orbiter 100 km from the surface of the moon, and ISRO's earth station near Bengaluru.

5. When Chandrayaan-II soft-lands successfully in early September on the lunar surface, it would 53 years since the first time it was done by a Soviet mission called Luna 9 in January 1966.

6. A soft landing means igniting an engine at the right altitude and angle to the **moon to begin a "retrofire,"** in order to decelerate the lander upon the moon. Once

- landed, the rover will roll out and perform experiments. The orbiter will continue its mission for a year.
7. India launched its first moon mission in 2008, a 1.3-tonne project launched in October 2008 that orbited the lunar body, equipped with terrain mapping cameras to make remote observations.
 8. The mission, which carried scientific instruments from eleven nations including the US, the UK and Germany, had an impact probe crash on the moon's surface and end prematurely but gave India some clues about water presence on the moon.
 9. The Chandrayaan -I programme ended under a year from launch: but left behind a baton for India to take forward. While Chandrayaan-I put India in a space league, its successor has taken the country to frontline of the race in tapping lunar clues for more space missions.
 10. Chandrayaan-2 is loaded with 13 payloads that will do a detailed study of topography, seismography, mineral identification and distribution, surface chemical composition, thermo-physical characteristics of top soil and composition of the tenuous lunar atmosphere for a new understanding of the origin and evolution of Moon.

Facts about Chandrayaan-2

1. The Chandrayaan-2 is an Indian Space Research Organization (ISRO) lunar mission comprising an orbiter and lander (Vikram) carrying a rover (Pragyan).
2. The moon is the closest cosmic body at which space discovery can be attempted and documented. But its south polar region has never been explored by any country before.
3. This is the first space mission to conduct a soft landing on the Moon's South Polar Region which has a lunar surface area much larger than that of the North Pole and remains in shadow.
4. The GSLV Mk-III which will carry Chandrayaan 2 to its designated orbit is India's most powerful launcher to date.
5. The mission life of the Orbiter is one year and the metre-long rover has an expected life of 14 Earth days (one lunar day).
6. In order to test the spacecraft's lander Vikram, ISRO recreated lunar surface at its Lunar Terrain Test Facility in Challakere Science City, Bengaluru.
7. The soil used for this test was sourced from a few sites near Salem in Tamil Nadu. Geologists of various national agencies had **found that it had the 'anorthosite' rock** that somewhat matches lunar soil in composition and features.
8. The name Vikram means valour in Hindi. It was named after the father of the Indian Space Programme, Vikram Sarabhai.
9. Chandrayaan-2 will have 14 Indian payloads or study devices including scientific ones to study topography, seismography, mineral identification and distribution, and surface chemical composition.

Why the Moon?

1. Moon provides the best linkage to Earth's early history as it offers an undisturbed historical record of the inner Solar system environment.
2. Origin of the Moon still needs further explanations. And, extensive mapping of the surface to study variations in its composition is essential to trace back the origin and evolution.

- Evidence for water molecules discovered by Chandrayaan-1 requires further studies on the extent of water molecule distribution on the surface, below the surface and in the tenuous lunar exosphere to address the origin of water on Moon.

Why explore the Lunar South Pole?

- The South Pole is especially interesting because of the lunar surface area here that remains in shadow are much larger than that at the North Pole.
- There's a possibility of presence of water in permanently shadowed areas around it.
- Also, South Pole region has craters that are cold traps and contain a fossil record of the early Solar System.

ODISHA RASAGOLA GETS GI TAG

A year after West Bengal walked away with geographical indication (GI) tag recognition for rasgulla, the Odisha government reopened the battle for ownership of the delicacy and **won the rights over 'Odisha rasagola'**. Now the Odisha Small Industries Corporation Limited (OSIC) will be the **registered holder of Odisha Rasagola's GI tag**, and it will enjoy all legal and intellectual protection available for the product, whose uniqueness to Odisha, its proof of origin and antiquity tied to boundaries of Odisha have all **been accepted by the Government of India's GI registry, which issued the certification in its latest journal.**

What

- OSIC has named all the 30 districts in Odisha as geographical areas entitled to use the GI tag and said Odisha Rasagola is associated with the world-renowned Puri Jagannath Temple.
- As per the rituals of "Niladri Bije", the rasagola bhoga is traditionally offered to Devi Lakshmi on behalf of Shree Jagannath. As per the Record of Rights, this is the duty of Bhitarchha Sebaka.
- Odisha rasagola is a sweet from the state of Odisha, made with

About GI

- A geographical indication (GI) is a name or sign used on certain products which corresponds to a specific geographical location or origin (e.g. a town, region, or country).
- India, as a member of the World Trade Organization (WTO), enacted the Geographical Indications of Goods (Registration and Protection) Act, 1999 has come into force with effect from 15 September 2003.
- GIs have been defined under Article 22(1) of the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement as: "Indications which identify a good as originating in the territory of a member, or a region or a locality in that territory, where a given quality, reputation or characteristic of the good is essentially attributable to its geographic origin."
- The GI tag ensures that none other than those registered as authorised users (or at least those residing inside the geographic territory) are allowed to use the popular product name. Darjeeling tea became the first GI tagged product in India, in 2004-05.

chhena cooked in sugar syrup, which is very soft to feel, juicy and non-chewy in consistency and can be swallowed without teeth pressure.

4. Colour development of Odisha rasagola is very specific, where without addition of external colour, various intensity-coloured rasagolas are prepared using the principle of caramalisation of sugar with specific methods of preparation.
5. Generally, the Odisha rasagola is white in colour with round shape (non- spherical) but off white rasagolas in various shades are prepared by cooking rasagola at 110 degrees C for about 40 minutes in which caramalisation of sugar takes place giving the off white colour.

NO VISHAKA GUIDELINES AT RELIGIOUS PLACES

Supreme Court on 22 July 2019 dismissed a PIL seeking directions to implement sexual harassment committees in religious institutions. A bench headed by Chief Justice Ranjan Gogoi said judicial orders can't be passed on this plea as Visakha guidelines cannot be extend to religious places.

What

1. A PIL was moved in the apex court seeking extension of its Vishakha guidelines to religious places, including 'ashrams', 'madrassas' and Catholic institutions, to check the rampant rise in sexual exploitation of women in such places.
2. Advocate Maneesh Pathak claimed in the petition that religious places constitute part of work place as many women were employed there besides others who were voluntary engaged with them.
3. In August 1997, the top court in the Vishakha case laid down as many as 12 guidelines to be followed by the employers to prevent or deter acts of sexual harassments against women.

Vishakha Guidelines

The Supreme Court defined sexual harassment as any unwelcome gesture, behaviour, words or advances that are sexual in nature. The court, for the first time, drew upon an international human rights law instrument, the Convention on the Elimination of All forms of Discrimination against Women (CEDAW), to pass a set of guidelines that are popularly known as Vishakha Guidelines, which include:

1. It is the onus of the employer to include a rule in the company code of conduct for preventing sexual harassment
2. Organizations must establish committees that are headed by women
3. Initiate disciplinary actions against offenders and safeguard the interests of the victim
4. Female employees shall be made aware of their rights

TRIPLE TALAQ BILL PASSED

Parliament marked a historic moment when Rajya Sabha passed the much-debated and politically contentious triple talaq bill that makes the Muslim practice of instant divorce punishable. Lok Sabha had passed the Bill and once it gets Presidential assent the practice of Muslim men instantly divorcing their wives by uttering 'talaq' thrice will become

a criminal offence, punishable by a jail term of up to three years. The bill will replace an ordinance promulgated on February 21.

What the new law says

1. Pronouncement of instant triple talaq by Muslim husband either spoken or written or in electronic form or in any other manner shall be void and illegal.
2. Muslim husband, who pronounces talaq to get jail term of up to 3 years, shall also be liable to fine.
3. Offence punishable under this Act shall be cognizable, if information relating to commission of offence is given to an officer in charge of a police station by the married Muslim woman upon whom talaq is pronounced, or any person related to her by blood or marriage.
4. Offence shall be compoundable, at the instance of the married Muslim woman upon whom talaq is pronounced, with permission of magistrate.
5. No person accused of a punishable offence shall get bail unless magistrate, on an application filed by the accused and after hearing the wife, is satisfied that there are reasonable grounds.
6. Married Muslim woman upon whom talaq is pronounced entitled to receive from her husband such amount of subsistence allowance as determined by magistrate.
7. Married Muslim woman shall be entitled to custody of her minor kids in event of pronouncement of talaq by her husband as determined by magistrate.



DEEP OCEAN MISSION

After successfully venturing into space exploration, India will launch its ambitious 'Deep Ocean Mission' by **October to enter hitherto** untapped 75,000 sq km of area in international waters to tap vast marine resources. **Underwater robotics and 'manned'** submersibles are key components of the Mission which will help India harness various living and non-living (water, mineral and energy) resources from the seabed and deep water.

What

1. The government is focussing on blue economy in terms of sustainable use of ocean resources for economic growth. The Mission will help in leveraging the **blue economy for the country's overall economic growth.**
2. The Mission would be a long-term exploration exercise and its staggering cost may run up to Rs 8,000 crore-Rs 10,000 crore over the next five years. The tasks that will be undertaken over this period include deep-sea mining, survey, energy exploration and the offshore-based desalination.

3. The Mission would be an integrated programme where several scientific departments of the government such as ISRO, DBT, DST, DRDO and ICAR will work together for sustainable harnessing of ocean resources.
4. Besides, a remotely operable in-situ soil testing equipment has also been developed for getting detailed geo-technical properties of the mining area at Central Indian Ocean Basin (CIOB).
5. India has exclusive rights over 75,000 sq km of international waters, allocated by UN's International Seabed Authority, for exploration of polymetallic nodules.
6. These technological developments were funded under an umbrella scheme of the government - called Ocean Services, Technology, Observations, Resources Modelling and Science (O-SMART) - which was approved last year at an estimated cost of Rs 1,623 crore till 2019-20.
7. The O-SMART has, however, other components including early warning systems for oceanic disasters, setting up marine coastal observatories for monitoring marine pollution and acquisition of coastal research vessels.

Flashback

1. The Cabinet Committee on Economic Affairs has given its approval for the umbrella **scheme** "Ocean Services, Technology, Observations, Resources Modelling and Science (O-SMART)", **for implementation** during the period from 2017-18 to 2019-20 on August 2018.
2. The scheme encompasses a total of 16 sub-projects addressing ocean development activities such as Services, Technology, Resources, Observations and Science.
3. The services rendered under the O-SMART will provide economic benefits to a number of user communities in the coastal and ocean sectors, namely, fisheries, offshore industry, coastal states, Defence, Shipping, Ports etc.

INDIA IN GII 2019

The 12th edition of the Global Innovation Index (GII) — an annual ranking of countries in terms of their capacity for innovation and success in it has ranked India as the 52nd most innovative country globally in its 12th edition. Published by INSEAD, Cornell University, and World Intellectual Property Organisation (WIPO), India has consistently improved its ranking in GII since 2015 when it was ranked at 81 followed by 66, 60, and 57 positions in 2016, 2017, and 2018 respectively. GII 2019 has ranked innovation performance of 120 economies globally relying on 80 indications. India, for the first time, hosted the launch of GII.

What

1. India has emerged as the most innovative economy in the Central and South Asian region. **This is the biggest rise among the world's major economies.**
2. **India's rise in 4 years from 81 in 2015 to 52** is a remarkable achievement that **reflects India's innovation performance relative to other countries.**
3. Switzerland led the GII 2019 as the most innovative country on earth followed by Sweden, the US, the Netherlands, the UK, Finland, Denmark, Singapore, Germany, and Israel. The pecking order remained the same as last year with Israel as the only new country breaking into the top 10 rankings.

4. Among the top 100 innovation hubs or clusters identified by GII this year were **India's** Bengaluru, New Delhi, and Mumbai.

Flashback

1. The Global Innovation Index (GII) looks forward to revealing the innovation **rankings of economies and the findings of this year's theme at the global** launch in New Delhi, India on 24 July 2019.
2. The GII is a source of insight into the multidimensional facets of innovation-driven growth. Providing 80 detailed metrics for 129 economies, the GII **has become one of the leading references for measuring an economy's** innovation performance.
3. Moving into its 12th edition in 2019, the GII has evolved into a valuable benchmarking tool that can facilitate public-private dialogue and where policy-makers, business leaders, and other stakeholders can evaluate innovation progress on an annual basis.
4. **In this year's edition**, it analyzes the medical innovation landscape of the next decade, looking at how technological and non-technological medical innovation will transform the delivery of healthcare worldwide.
5. It also explores the role and dynamics of medical innovation as it shapes the future of healthcare, and the potential influence this may have on economic growth.

CTDP MERGED WITH BOT

The government has merged the Council of Trade Development and Promotion (CTDP) with the Board of Trade (BOT) to bring greater coherence in consultation process with all stakeholders for promoting exports and imports. According to a notification of the directorate general of foreign trade (DGFT), the new forum will remain as Board of Trade and will work with ten terms of references.

What

1. The new board would provide a platform to states and union territories for articulating their perspectives on trade policy and help states to develop and pursue export strategies in line with the national foreign trade policy.
2. Besides, the forum would advise the government on policy measures for

Flashback

1. Council for Trade Development and Promotion has been constituted with effect from 3rd July, 2015.
2. It ensure a continuous dialogue with State Governments and UTs on measures for providing an International trade enabling environment in the States and to create a framework for making the States active partners **in boosting India's exports.**
3. The Board of Trade (BOT) was reconstituted on 16.07.2009 under the Chairmanship of Commerce & Industry Minister.
4. The Board of Trade, inter alia, advises the Government on policy measures connected with the Foreign Trade Policy in order to achieve the objectives of boosting **India's trade.**

- preparation and implementation of short and long term plans.
3. It would also review export performances of various sectors, identify constraints and suggest industry specific measures to optimise export earnings and to examine existing institutional framework for imports and exports.
 4. To bring greater coherence in consultation process, it has been decided to merge Council of Trade Development and Promotion (CTDP) with the Board of Trade (BOT) and the new forum will remain as Board of Trade.
 5. The board will be chaired by commerce and industry minister. Its members will include minister of state for commerce and industry and state ministers who are in charge of trade.
 6. The official members will include secretaries of different departments like revenue, commerce, health and agriculture besides NITI Aayog CEO, Deputy Governor RBI, and CBIC chairman.
 7. Further, the new forum would have presidents and chairpersons of industry chambers among others as ex-officio members.

NHRC AMENDMENT BILL PASSED

The Parliament has passed a bill the Protection of Human Rights (Amendment) Bill, 2019 to expedite the process of appointment of chairperson and members of the National Human Rights Commission (NHRC) after the government assured steps were being taken "round-the-clock" to protect human rights.

What

1. The amendment provides for reduction in the tenure of chairpersons of national and state human rights bodies to three years from the current five years.
2. It also stipulates that besides a former chief justice of India, as is the current requirement, a former Supreme Court judge can also become NHRC chairperson.
3. Similarly, a former high court judge can also become a state human rights commission chairperson besides a high court chief, according to the bill.
4. Under the existing Act, chairpersons of commissions such as the National Commission for Scheduled Castes, National Commission for Scheduled Tribes and National Commission for Women are members of the NHRC.
5. The new bill provides for including the chairpersons of the National Commission for Backward Classes, the National Commission for the Protection of Child Rights and the Chief Commissioner for Persons with Disabilities as members of the NHRC. The

NATIONAL HUMAN RIGHTS COMMISSION (NHRC)

1. The National Human Rights Commission (NHRC) of India is a Statutory public body constituted on 12 October 1993 under the Protection of Human Rights Ordinance of 28 September 1993.
2. It was given a statutory basis by the Protection of Human Rights Act, 1993.
3. The NHRC is the National Human Rights Commission of India, responsible for the protection and promotion of human rights, defined by the Act as "Rights Relating To Life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the International Covenants.

participation of civil society representatives will provide more strength to protect human rights.

6. Global Alliance of National Human Rights Institutions (GANHRI) had earlier accorded A rating to NHRC.

UNLAWFUL ACTIVITIES AMENDMENT BILL PASSED

The Lok Sabha on 24 July 2019 passed the Unlawful Activities (Prevention) Amendment Bill, popularly known as the Anti-Terrorism Bill. Introducing the bill in the lower house, Union Home Minister Amit Shah said the amendments to the bill will ensure **anti-terror laws are not misused. There's a need for a provision in the UAPA bill to designate a person suspected to have terror links as a terrorist.** It is necessary to root out terror.

What is UAPA Bill?

1. Instead of designating only an organisation as a terrorist organisation, the bill additionally empowers the centre to declare an individual as a terrorist.
2. The bill adds that if the investigation is conducted by an officer of the National Investigation Agency (NIA), the approval of the Director General of NIA would be required for seizure of such property.
3. Apart from officers of the rank of Deputy Superintendent or Assistant Commissioner of Police or above, the bill empowers officers of the NIA, of the rank of Inspector or above, to investigate cases.
4. The bill adds another treaty to the list that defines terrorist acts committed within a scope of treaties listed in a schedule to the Act.
5. This is the International Convention for Suppression of Acts of Nuclear Terrorism (2005) will be added with Convention for the Suppression of Terrorist Bombings (1997), and the Convention against Taking of Hostages (1979).

A BILL TO CURB PONZI SCHEMES PASSED

Parliament on 29 July 2019 unanimously passed the Banning of Unregulated Deposit Schemes Bill, 2019, which seeks to put in place a mechanism by which poor depositors will get back their hard earned money. The Rajya Sabha passed with voice vote the bill which would save gullible investors from ponzi schemes. The Lok Sabha had passed the bill on July 24, 2019. The Banning of Unregulated Deposit Schemes Bill, 2019 replaced the Ordinance on the same.

What

1. The government had constituted an inter-ministerial group to address gaps in existing legislation. The recommendations include a new central law to tackle unregulated deposit schemes.
2. The Bill is part of the government's effort to bring back money looted by some high and mighty people.
3. The Bill states that the first claim on the recovered money will be of depositors and the proposed legislation also has some exclusion including money collected by real estate firms and from friends and relatives.
4. The bill will give power to both central and state governments to frame rules, 978 cases have been identified so far and of this 326 are in West Bengal

5. The bill seeks to help tackle the menace of illicit deposit taking activities in the country, which at present are exploiting regulatory gaps and lack of strict administrative measures to dupe poor and gullible people of their hard earned money, according to the government.
6. The banning of Unregulated Deposit Scheme Bill, 2018 was considered by the Lok Sabha in February and after discussion, the same was passed.
7. However, before the same could be considered and passed in the Rajya Sabha, the House was adjourned sine die on the same day.
8. The bill seeks to provide a comprehensive mechanism to ban the unregulated deposit schemes, other than deposits taken in the ordinary course of business, and to protect the interest of depositors.
9. The law also proposes to create three different types of offences running of unregulated deposit schemes, fraudulent default in regulated deposit schemes and wrongful inducement in relation to unregulated deposit schemes.
10. It also provides for severe punishment ranging from 1 year to 10 years and pecuniary fines ranging from Rs 2 lakh to Rs 50 crore to act as deterrent.
11. The bill has also proposed adequate provisions for disgorgement or repayment of deposits in cases where such schemes nonetheless manage to raise deposits illegally.
12. The proposed law also provides for attachment of properties or assets and subsequent realisation of assets for repayment to depositors. Clear-cut timelines have been provided for attachment of property and restitution to depositors.

OBC PANEL GETS EXTENSION

The Union Cabinet, chaired by the Prime Minister Narendra Modi has approved the extension of the term of the commission constituted under Article 340 of the constitution to examine the issue of Sub-categorization within other Backward Classes in the Central List by six months beyond 31st July, 2019 and upto 31st January, 2020. **The proposed extension of tenure shall enable the “Commission” to submit a comprehensive report on the issue of sub-categorization of OBCs, after consultation with various stake holders.**

What

1. The Union Cabinet has given final extension to commission constituted to examine sub-categorisation within Other Backward Classes (OBCs) in Central list. The commission earlier had term till June 20, 2018 but with extension it will

Background

1. The Supreme Court of India in Indra Sawhney and others vs. Union of India case (1992) had observed that there is no constitutional or legal bar on states for categorizing OBCs as backward or more backward.
2. It had also observed that it is not impermissible in law if state chooses to do sub-categorization.
3. So far, 9 states/UTs viz. Karnataka, Haryana, Andhra Pradesh, Jharkhand, Puducherry, Telangana, West Bengal, Bihar, Maharashtra and Tamil Nadu have carried out sub-categorization of OBCs. So far there was no sub categorisation in central list of OBCs.

- now work till July 31, 2018.
2. The Commission was constituted with approval of President under Article 340 of Constitution in October, 2017. It is headed by Justice (Retd.) G. Rohini.
 3. It was tasked to examine extent of inequitable distribution of benefits of reservation among castes included in broad category of OBCs, especially with reference to OBCs included in Central list.
 4. It was also tasked to take up exercise of identifying respective castes, sub-castes, **community's** synonyms in Central List of OBCs and classify them into their respective sub-categories.
 5. Its mandate was to work out mechanism, norms, criteria and parameters, in scientific approach, for sub-categorization within such OBCs.

INTERNATIONAL

ITLU AT MOSCOW APPROVED

The Union Cabinet chaired by Prime Minister Narendra Modi has approved the setting up of ISRO Technical Liaison Unit (ITLU) at Moscow, Russia. The ISRO Technical Liaison Unit (ITLU) at Moscow will enable effective technical coordination for timely interventions on diversified matters with Russia and neighbouring countries for realization of the programmatic targets of ISRO.

What

1. The Liaison Officer, deputed at ITLU from ISRO provides technical information about the developments in research and technology and inputs arising from their meetings with researchers, government agencies and industries in the respective countries.
2. They also support the ongoing bilateral programmes of cooperation in space technology and act on behalf of ISRO on the matters referred.
3. ISRO will be able to collaborate with Space agencies/industries in Russia and neighbouring countries for mutually synergetic outcomes.
4. **ISRO's Gaganyaan programme** requires development of some of the key technologies and establishment of specialized facilities, which are essential to support life in space.

Background

1. Department of Space has instituted technical Liaison Units, namely ISRO Technical Liaison Units (ITLU) at Washington, USA and Paris, France with the prime objective to liaise with various Government and space agencies in USA and Europe, respectively.
2. Space cooperation has been one of the major links between India and Russia almost from the beginning of the space era and currently both sides are actively pursuing interactions in diversified areas of space programme.
3. Apart from intensifying cooperation with Russia, India has expanded its space cooperation with countries near to Russia. This calls for extensive uninterrupted coordination & interface support for increased level international technical collaboration.

5. Keeping in view the 15th August, 2022 timeline for realization of the Gaganyaan human space programme, it is prudent to avail technical cooperation from International space agencies, who have already demonstrated their technical capabilities in specific areas.
6. Russia, being one of the space faring nations, it is envisaged to collaborate with Russia extensively in various fields of relevance.
7. The ITLU Moscow office would be managed by an ISRO Scientist/Engineer designated as **“Counsellor (Space)” on deputation, deputed from ISRO and supported by a staff locally sourced.** The process is planned to be completed within six months from the date of approval.
8. The Liaison Officers provides technical information about the developments in research and technology and inputs arising from their meetings with researchers, government agencies and industries in the respective countries.
9. They also support the ongoing bilateral programmes of cooperation in space technology and act on behalf of ISRO on the matters referred.

INDIA GETS APACHE ATTACK HELICOPTERS

US aerospace major Boeing on 27 July 2019 handed over the first four of the 22 Apache attack helicopters to the Indian Air Force while another batch of four choppers will be delivered next week. The delivery of the first batch of the AH-64E Apache helicopters to the IAF at the Hindan air base came nearly four years after a multi-billion dollar deal for the choppers was sealed. Boeing said the first batch of the Apaches arrived in India and an additional four choppers will be delivered to the IAF next week. The eight choppers will then move to the Pathankot Air Force station for their formal induction by the IAF, in September.

What

1. The AH-64E Apache is one of the world's most advanced multi-role combat helicopters, and is flown by the US Army.
2. The IAF had signed a multi-billion dollar contract with the US government and Boeing Ltd in September 2015 for 22 Apache helicopters.
3. Additionally, the Defence Ministry in 2017 approved the procurement of six Apache helicopters along with weapons systems from Boeing at a cost of Rs 4,168 crore for the Army. This will be its first fleet of attack choppers.
4. The Apache fleet will significantly enhance the force's combat capabilities as the chopper has been customised to suit IAF's future requirements.
5. The company has delivered more than 2,200 Apaches to customers around the world since the aircraft entered production and India is the 14th nation to select it for its military.
6. "By 2020, the IAF will operate a fleet of 22 Apaches, and these first deliveries are ahead of schedule.

ARROW-3 SYSTEM SUCCESSFULLY TESTED

Israel and the United States have successfully carried out tests of a ballistic missile interceptor that Prime Minister Benjamin Netanyahu said on 28 July 2019 provides protection against potential threats from Iran. The tests of the Arrow-3

system were carried out in the US state of Alaska and it successfully intercepted targets above the atmosphere. The flight tests were conducted in Alaska in order to test capabilities that may not be tested in Israel.

What

1. The Arrow system, partly financed by the United States, was developed and produced by Israeli Aerospace Industries in partnership with Boeing.
2. Arrow-3 is intended to serve as Israel's highest-altitude missile interception system. Systems for intercepting incoming missiles at lower altitudes also exist.
3. Since 2015, Israel's main enemy Iran has continued developing and testing ballistic missiles which it says are for defensive purposes only.
4. Israel has the most powerful military in the Middle East and is widely considered to be its sole nuclear-armed power, though it has never acknowledged the capability.
5. The tests come with tensions high between the United States and Iran.
6. Those tensions followed Washington's sanctions against Tehran after US President Donald Trump's withdrawal from a nuclear deal between the Islamic republic and world powers.

ECONOMY

REPORT ON RBI CAPITAL FINALISED

Bimal Jalan committee, constituted to assess the optimum size of capital reserves that the RBI should hold, on 17 July 2019 finalised its report. The six-member panel, under former RBI Governor Jalan was appointed on December 26, 2018, to review the economic capital framework (ECF) for the Reserve Bank of India (RBI) after the finance ministry wanted the central bank to follow global best practices and transfer more surplus to the government. As per various estimates, the RBI has over Rs 9 lakh crore of surplus capital with it.

What

1. About the quantum of surplus transfer from the RBI to the government, it cannot be disclosed at the moment but transfer would be periodic and would spread over 3-5 years.
2. The surplus capital transfer would help the government meet its fiscal deficit target as it will come as a windfall to the exchequer.
3. The government has set a fiscal deficit target of 3.3 per cent of the gross domestic product (GDP) for the current fiscal, revised downward from 3.4 per cent pegged in the interim Budget in February.
4. Besides surplus capital transfer, the government is expecting Rs 90,000 crore dividend from the RBI in the current financial year as against Rs 68,000 crore received last fiscal.
5. When asked about presenting the report to the RBI, which constituted the panel last year, the sources said that after editing, date will be sought for submission.
6. The ECF panel was mandated to submit its report to the RBI within 90 days of its first meeting which took place on January 8. Following this, the panel was given a three-month extension.

7. The other key members of the committee include Rakesh Mohan, former deputy governor of the RBI, as vice-chairman; Finance Secretary Subhash Chandra Garg; RBI Deputy Governor N S Vishwanathan; and two RBI central board members -- Bharat Doshi and Sudhir Mankad.
8. The government and the RBI under previous governor Urjit Patel had been at loggerheads over the Rs 9-lakh crore surplus capital with the central bank.
9. The finance ministry was of the view that the buffer of 28 per cent of gross assets maintained by the RBI is well above the global norm of around 14 per cent. Following this, the RBI board in its meeting on November 19, 2018, decided to constitute a panel to examine ECF.

Flashback

1. The committee would also propose a suitable profit distribution policy taking into account all the likely situations of the RBI, including holding more provisions than required and the RBI holding less provision than required.
2. In the past, the issue of the ideal size of the Reserve Bank of India reserves was examined by three committees -- V Subrahmanyam in 1997, Usha Thorat in 2004 and Y H Malegam in 2013.
3. While the Subrahmanyam panel recommended for building a 12 per cent contingency reserve, the Thorat panel suggested it should be maintained at a higher 18 per cent of the total assets of the central bank.
4. The RBI board did not accept the recommendation of the Thorat committee and decided to continue with the recommendation of the Subrahmanyam committee.
5. The Malegam panel said the RBI should transfer an adequate amount of its profit to the contingency reserves annually but did not ascribe any particular number.

COMMITTEE ON FDI IN E-COMMERCE

A Committee has been constituted under the Department for Promotion of Industry and Internal Trade to examine issues related to FDI in the e-commerce sector, Parliament was informed on 24 July 2019. The committee was constituted on July 12 under an additional secretary level officer from the Department for Promotion of Industry and Internal Trade (DPIIT) with members from the departments of commerce, consumer affairs, legal affairs and MSME.

What

1. They will examine issues related to FDI (foreign direct investment) in the e-commerce sector and give suggestions, Commerce and Industry Minister Piyush Goyal said.
2. A committee has been constituted under Additional Secretary; DPIIT to examine issues related to FDI in e-commerce and give its suggestions.
3. According to the current policy, 100 per cent FDI is allowed in the marketplace format of e-commerce retailing. However, FDI is prohibited in the inventory-based model.

4. The minister said from 2006 till March 29, 2018, 112 brands have obtained approval of the government for single-brand retail trading activities.
5. FDI policy on single-brand retail trade has been in operation since 2006. FDI up to 100 per cent under automatic route has been allowed in the sector subject to certain conditions.

SCIENCE AND TECHNOLOGY

CRYPTOCURRENCY PANEL REPORT

The committee set up to look into the legality of cryptocurrencies and blockchain has submitted its report to the Finance Ministry and recommended that private cryptocurrencies be banned completely in India. It has also drafted a law, the 'Banning of Cryptocurrency & Regulation of Official Digital Currency Bill, 2019', which mandates a fine and imprisonment of up to 10 years for offences. The committee, however, said the government should keep an open mind on the potential issuance of cryptocurrencies by the Reserve Bank of India. The government had constituted an Inter-Ministerial Committee on November 2, 2017, under the Chairmanship of Economic Affairs Secretary Subhash Chandra Garg and comprising senior officials of the Ministry of Electronics and Information Technology, SEBI and the RBI.

What

1. The committee notes with serious concern mushrooming of cryptocurrencies almost invariably issued abroad and numerous people in India investing in these. All these cryptocurrencies have been created by non-sovereigns.
2. The report went on to highlight the fact that cryptocurrencies do not have any intrinsic value of their own and lack any of the attributes of a currency. That is, they neither act as a store of value nor are they a medium of exchange in themselves.
3. Therefore, the Committee is of clear view that the private cryptocurrencies should not be allowed. These cryptocurrencies cannot serve the purpose of a currency.
4. The private cryptocurrencies are inconsistent with the essential functions of money/currency, hence private cryptocurrencies cannot replace fiat currencies.
5. The Committee, however, leaves the door open for the central bank issued cryptocurrencies, **adding that it endorsed the RBI's stance of banning any sort of interface of cryptocurrencies with the banking system in India.**
6. The Committee recommends that all private cryptocurrencies, except any cryptocurrency issued by the state, be banned in India. The Committee endorses the stand taken by the RBI to eliminate the interface of institutions regulated by the RBI from cryptocurrencies.
7. The report goes on to say that **it would be advisable to "have an open mind"** regarding the introduction of an official, government-backed cryptocurrency in India. But it also added that it is currently unclear what the advantages of such a currency in India would be.]
8. In light of this, it recommended that the government constitute a committee under the Department of Economic Affairs and the participation of the RBI, Ministry of Electronics and Information Technology (MEITY), and the Department of Financial Services to further look into the matter.

9. The draft law says that anybody who mines, generates, holds, sells, deals in, transfers, disposes of or issues cryptocurrencies with will face a fine and/or jail time of between 1 and 10 years. The fine has been set at the either three times the loss or harm caused by a person, or three times the gain made by the person, whichever is higher.

WII REPORT ON GIB

The critically endangered Great Indian Bustard (GIB) is nearing extinction due to collision with high voltage power lines that criss-cross their flying path, according to a report by the Ministry of Environment. The report, which has been prepared by the Wildlife Institute of India (WII), a statutory body under the ministry, said only 150 GIBs are left, with the maximum number in Jaisalmer. They are dying at the rate of 15% annually due to collision with high voltage power lines. The GIB population has been reduced by 75% in the last 30 years, said the WII report which has compiled various studies conducted by researchers across the country.

What

1. Mortality of adult GIBs is high due to collision with power lines that criss-cross their flying path. All bustards are prone to collision due to their poor frontal vision and inability to see the power lines from a distance.
2. **WII's research has shown that power lines, particularly** high voltage (33-440 KV) transmission lines with vertical alignment are the biggest threat to GIB as of now and their habitats have a high density of transmission lines because of the impetus on renewable energy production in GIB habitats of Rajasthan and Gujarat.
3. The study recorded 5 GIB deaths in 2017-18 in Jaisalmer alone and calculated that 15% of the GIB population may be dying because of this threat.
4. Since the natural death rate of large bustards is 4-8% , the current additive mortality rate due to transmission lines is significantly higher and if not controlled, can result in the species extinction, the report said.
5. The report was submitted by the ministry to the NGT on the plea of Bhanu Bansal, secretary of NGO Centre for Wildlife and Environmental Litigation (CWEL) seeking conservation of GIB to save them from extinction.
6. Protection and conservation of GIB is the need of the hour. Report itself says that lakhs of birds die every year due to power lines. There is an urgent need to put bird diverters and underground the power lines to bring the mortality rate down.
7. According to the report, the Great Indian Bustard (GIB) is a critically endangered bird with less than 150 individuals left in India and are in an urgent need of conservation actions.
8. Maximum number of GIBs were found in Jaisalmer and the Indian Army controlled field firing range near Pokhran, Rajasthan. Other areas where they are found in less than 10 in number are Kutch district in Gujarat, Nagpur, Amravati and Solapur districts in Maharashtra, Bellary and Koppal districts in Karnataka and Kurnool district in Andhra Pradesh.
9. Listing out other threats to the GIB, the report said irrigation and farming technology, mining, wind turbines and associated infrastructure growth have causes severe habitat degradation to birds, including GIB.
10. The report suggested that there is a need to regulate such intensive agricultural land-uses to achieve long term GIB persistence. Ill-informed forestry practices by

state forest departments such as plantation of exotic shrub/tree species in deserts and grasslands in the name of afforestation have also degraded the habitat of GIB and other open habitat species that prefer visibility and openness.

11. It has recommended mitigating power transmission lines passing through priority bustard habitats identified by the WII by undergrounding cables or installing bird diverters to make them prominent to birds.
12. This action must be expeditiously implemented in the short-term (1-3 years), as power-line mortality is currently the biggest threat to the species, the report said.
13. New wind turbines, solar farms (photovoltaic power stations) from priority GIB habitats should be disallowed and existing ones that are in the critical areas be removed.

Flashback

1. Established in 1982, Wildlife Institute of India (WII) is an internationally acclaimed Institution, which offers training program, academic courses and advisory in wildlife research and management.
2. The Institute is actively engaged in research across the breadth of the country on biodiversity related issues.
3. The Institute's idyllic campus that has been carefully developed to create state of the art infrastructure encourages scholarly work.

14. The government has released Rs 33 crore for the conservation of the GIB through a **project, titled 'Habitat Improvement and Conservation Breeding of Great Indian Bustard-An Integrated Approach', for five years from the** Compensatory Afforestation Fund Management and Planning Authority (CAMPA) for conservation, breeding of the GIB with technical support from the WII.

TMT GETS GREEN SIGNAL

After four years of delay, the on-site construction of the Thirty Meter Telescope (TMT), the **world's largest ground-based** observatory, is due to commence this week on Mauna Kea in the Hawaiian Islands. India is one of the countries — along with USA, Canada, Japan and China — collaborating on this international project. The Department of Science and Technology (DST) and the Department of Atomic Energy (DAE) together will spend a sum of Rs 1,300 crore for the project across 10 years of construction. The scientific community is now hopeful of making the facility operational and sees first light by 2029.

What

1. Native Hawaiians were at

Flashback

1. The TMT International Observatory (TIO), a non-profit organization, was established in May 2014 to carry out the construction and operation phases of the TMT Project.
2. The Members of TIO are Caltech, the University of California, the National Institutes of Natural Sciences of Japan, the National Astronomical Observatories of the Chinese Academy of Sciences, the Department of Science and Technology of India, and the National Research Council (Canada); the Association of Universities for Research in Astronomy (AURA) is a TIO Associate.
3. Major funding has been provided by the Gordon & Betty Moore Foundation.

loggerheads with the scientific community building TMT, citing that the mountain was a sacred one and existing telescopes were already interfering with their cultural practices. In an official statement released, the State of Hawaii granted permission to build TMT on Mauna Kea.

2. Eswar Reddy, Programme Director, India TMT Coordination Centre, Indian Institute of Astrophysics (IIA), Bengaluru, said, Much of the initial work will involve site preparation, including grading work and the installation of perimeter fencing.
3. The civil construction is being coordinated by the TMT project office based in Pasadena, USA.
4. Over the years, polls conducted among locals in Hawaii showed that support for TMT had grown. Several construction contracts for the project have also been won by Hawaiian firms.

MATERIAL HELP TO MAKE MARS HABITABLE

Regions of Mars could be made habitable with a material — silica aerogel — that **mimics Earth's atmospheric greenhouse effect**, according to a study by NASA and Harvard researchers. People have long dreamed of re-shaping the Martian climate to make it livable for humans. Carl Sagan was the first outside of the realm of science fiction to propose terraforming. In a 1971 paper, Sagan suggested that vapourising the northern polar ice caps would yield atmosphere over the planet, higher global temperatures through the greenhouse effect, and a greatly increased likelihood of liquid water. Now, researchers from the **Harvard University and NASA's Jet Propulsion Lab in the US**, have shown that a two to three-centimeter-thick shield of silica aerogel could transmit enough visible light for photosynthesis, and block hazardous ultraviolet radiation.

What

1. Doing so will also raise temperatures underneath permanently above the melting point of water, all without the need for any internal heat source, according to the study.
2. This regional approach to making Mars habitable is much more achievable than global atmospheric modification, said Robin Wordsworth, Assistant Professor at the Harvard John A Paulson School of Engineering and Applied Sciences (SEAS).
3. Unlike the previous ideas to make Mars habitable, this is something that can be developed and tested systematically with materials and technology we already have, said Wordsworth.
4. Mars is the most habitable planet in our Solar System besides Earth. But it remains a hostile world for many kinds of life. A system for creating small islands of habitability would allow us to transform Mars in a controlled and scalable way.
5. Unlike **Earth's polar ice caps**, which are made of frozen water, polar ice caps on Mars are a combination of water ice and frozen CO₂. Like its gaseous form, frozen CO₂ allows sunlight to penetrate while trapping heat.
6. In the summer, this solid-state greenhouse effect creates pockets of warming under the ice. We started thinking about this solid-state greenhouse effect and how it could be invoked for creating habitable environments on Mars in the future.
7. The researchers landed on silica aerogel, one of the most insulating materials ever created. Silica aerogels are 97 per cent porous, meaning light moves through the material but the interconnecting nanolayers of silicon dioxide infrared radiation and greatly slow the conduction of heat.

- These aerogels are used in several engineering applications today, including NASA's Mars Exploration Rovers. Silica aerogel is a promising material because its effect is passive. It wouldn't require large amounts of energy or maintenance of moving parts to keep an area warm over long periods of time.

MISCELLANEOUS

JUDGE OF SICC

Former Supreme Court judge Justice A K Sikri has been appointed as an International Judge of the Singapore International Commercial Court (SICC) from August 1. His appointment is until Jan 4, 2021.

What

- Justice Sikri, who retired on March 6, was nominated last January for appointment to the Commonwealth Secretariat Arbitral Tribunal at London, UK.
- The SICC is a division of the Singapore High Court, dealing with international commercial disputes. It has 16 international judges in its panel.
- On May 14, Justice Sikri was appointed the Chairman of News Broadcasting Standards Authority.

About SICC

- The SICC is a division of the Singapore High Court and part of the Supreme Court of Singapore designed to deal with transnational commercial disputes.
- It is a superior court of law built on the foundations of a legal and judicial system that has been highly regarded and favourably ranked in international surveys conducted by, among others, the Swiss-based International Institute for Management Development and the Hong Kong-based Political and Economic Risk Consultancy.

Jurisdiction of SICC

- The claim in the action is of an international and commercial nature
- The parties to the action have submitted to the **SICC's** jurisdiction under a written jurisdiction agreement
- The parties to the action do not seek any relief in the form of, or connected with, a prerogative order (including a mandatory order, a prohibiting order, a quashing order or an order for review of detention).

ARJUNA AWARD 2019

Cricketer Smriti Mandhana and tennis star Rohan Bopanna were conferred with the Arjuna Awards by Union Sports minister Kiren Rijiju at a ceremony held in New Delhi. Team India opener Mandhana had missed out on the award last year due to international commitments. Smriti Mandhana was the women cricket team's standout performer this season in both one-day internationals and T20s. The 22-year-old is currently ranked no. 1 in the ICC ODI Batting rankings. Playing for India, Mandhana has already scored 1951 runs in ODIs at an average of over 42.

What

1. Mandhana, who is known for her attacking style of play, is now looking to add more arsenals to her repertoire. She will be seen in action next when India take on South Africa in September.
2. Rohan Bopanna thanked the minister for the award and said that he was humbled by this acknowledgement. Such an honour to have received the Arjuna Award from the Sports Minister Kiren Rijiju.
3. The Arjuna Awards are given by the Ministry of Youth Affairs and Sports, Government of India to recognize outstanding achievement in sports.
4. From the year 2001, the award is given only in disciplines falling under the categories of Olympic Games / Asian Games / Commonwealth Games / World Cup / World, Championship Disciplines and Cricket, Indigenous Games and Sports for the Physically Challenged.

INDIA'S 64TH GRANDMASTER

Delhi's Prithu Gupta has become India's 64th Grandmaster, crossing the Elo threshold of 2500 points after beating IM Lev Yankelevich in the fifth round of the Portuguese League 2019. Gupta, who picked up the sport as a nine-year-old, has achieved the sensational feat at the age of 15 years, 4 months and 10 days.

What

1. His achievement came 31 years after Viswanathan Anand had become India's first Grandmaster.
2. Gupta received his first GM norm at the Gibraltar Masters last year, before achieving the second norm at the Biel Masters the same year.
3. He got the final norm at the Porticcio Open early this month and finally achieved the required ELO points with win over Yankelevich.
4. D Gukesh is India's youngest GM at 12 years, 7 months and 17 days. He had achieved the feat in January this year.

MARY KOM WINS GOLD MEDAL

Six-time world champion MC Mary Kom claimed the gold medal without breaking a sweat in the **23rd President's Cup**, asserting her supremacy in a lop-sided 51kg bout final in Labuan Bajo, Indonesia on 28 July 2019. The Olympic bronze medallist pugilist decimated Australian April Franks 5-0.

What

1. The 36-year-old Indian had also won a gold medal at the India Open boxing tournament in May, but skipped the Asian Championships as part of a larger plan to enhance her chances of Olympic qualification. The Asian Championship was held in Thailand in May.
2. Fresh from winning the gold at the India Open two months ago, Mary Kom participated in this prestigious tournament with the aim of testing herself and getting some much-needed bouts under the belt ahead of the World Championships.
3. Mary Kom, who claimed her sixth world title last year in Delhi, will be looking to qualify for the 2020 Tokyo Olympics in the World Championships in Yekaterinburg, Russia.
4. The 2019 World Boxing Championships for women will be held from September 7 to 21.

INDIAN WINS PEOPLE'S CHOICE AWARD IN US

Renowned Indian sand artist and Padma Awardee Sudarsan Pattnaik has won the **People's Choice** Award at a prestigious sand sculpting festival in the US, wowing the American public with his sculpture that highlighted the message of combating plastic pollution in oceans. Pattnaik was among the 15 top sand artists selected from across the world to participate in the 2019 Revere Beach International Sand Sculpting Festival in Boston, Massachusetts. **He won the People's Choice Award for his sand sculpture 'Stop Plastic Pollution, Save Our Ocean'.**

What

1. The award-winning sculpture showed a turtle caught in a plastic bag and a fish with plastic trash such as slippers, bottles and glass inside its body. The tail of the fish is in the mouth of a human, signifying how plastic pollution in the oceans is adversely impacting human beings also when they consume sea food.
2. His sculpture he wants to highlight that human activity is destroying the oceans and humans are also getting impacted by polluted waterways as they consume food from the sea and rivers.
3. Several Indians also showed up at the festival with the Indian tricolour and extended their support for Pattnaik, who expressed gratitude to the Indian Consulate General in New York and its officials for their support.
4. One of the largest sand sculpting festivals in the world, it sees participation from leading sand sculptors from around the world. Pattnaik was the sole representative from India and Asia. Artists from Belgium and Canada also won at the prestigious championship.

4TH CYCLE OF ALL INDIA TIGER ESTIMATION

On the occasion of International Tiger Day (29 July 2019), Prime Minister Narendra Modi released the results of the fourth cycle of All India Tiger Estimation - 2018 at Lok Kalyan Marg in New Delhi on 29 July 2019. The count of tigers in India has risen to 2967, in 2018, according to this census. The Prime Minister described this as a historic achievement for India, **and reaffirmed India's commitment towards protecting the tiger.** The Prime Minister appreciated the speed and dedication with which various stakeholders worked to achieve this. The Prime Minister said that with almost 3000 tigers, India is today among the biggest and most secure habitats.

What

1. Shri Narendra Modi asserted India will build more homes for our citizens and that at the same time create quality habitats for animals. This balance is what will contribute to a strong and inclusive India.
2. PM said that in the last five years, while work has proceeded at a fast pace for next-generation infrastructure, the forest cover in the country has also grown. There has **also been an increase in the "protected areas."**
3. In 2014, there were 692 protected areas, which increased to more than 860 in **2019. The "Community Reserves" have also grown from 43, in 2014, to more than 100 now.**
4. The 33% rise in tiger numbers is the highest ever recorded between cycles which stood at 21% between 2006 to 2010 and 30% between 2010 and 2014.
5. The rise in tiger numbers was in conformity with the average annual growth rate of tigers since, 2006. Madhya Pradesh saw the highest number of tigers at 526, closely followed by Karnataka at 524 with Uttarakhand at number 3 with 442 tigers.

6. It was a moment of pride for the country as it achieved its commitment to the St.Petersburg Declaration, of doubling Tiger population, much in advance to the 2022 deadline.
7. Chhatisgarh and Mizoram saw a decline in their tiger numbers **while** tiger's numbers in Odisha remained constant. All other States witnessed a positive trend. Viewed at the landscape level, all 5 landscapes showed an increase with the Central Indian landscape recording the highest increment.
8. India has been estimating its tigers using a double sampling approach involving a mark-recapture framework to ascertain tiger numbers, which is being improved over time keeping in view advancements made in science.
9. Projecting tiger reserve as engines of growth was highlighted in the report released on Economic Valuation of Tiger Reserves which was jointly published by the NTCA and the Indian Institute of Forest Management Bhopal.
10. **The Prime Minister also released trailer of the documentary titled "Counting Tigers"** to be aired worldwide on August 7. In conclusion, the Prime Minister called for even greater efforts, towards Tiger Conservation.

ANTI-MICROBIAL PEPTIDE (AMP)

Researchers at the Indian Institute of Science (IISc.) have designed an anti-microbial peptide (AMP) that, researchers say, can effectively and quickly kill a notorious multidrug-resistant bacterium called *Acinetobacter baumannii*. The **bacterium tops the WHO's list of threats** that urgently need new antibiotics because it is "remarkably adept at developing drug resistance". **It is** among the six species responsible for most infections in hospitals and health care centres.

What

1. IISc. Researchers used a bioinformatics approach to design a new short protein (peptide) called Omega76 that can kill *A. baumannii* by breaking down its cell membrane.
2. Infected mice treated with Omega76 had much better survival rates. The team also found that high doses of Omega76 given for prolonged periods did not produce any toxic effects. Since it is safe and effective, it is a promising candidate for developing new antibiotics.
3. The significance of *A. baumannii* infection was not sufficiently understood earlier. It was regarded as just another bug in the environment. It has now become a major threat, especially in the intensive care units.
4. They are not entirely safe either; a drug called colistin, which is considered the last hope for multidrug-resistant infections, has been found to cause severe kidney damage.
5. **While standard drugs act by "blocking specific pathways or processes in bacterial cells," bacteria can evolve to gain resistance against such drugs.**
6. On the other hand, anti-microbial peptides (AMPs) actually punch holes in the bacterial cell membrane. The chances of drug resistance are much lower because they act by multiple ways and cause actual physical damage. The researchers plan to improve its design further, and explore clinical uses.