

CURRENT AFFAIRS

WEEKLY

WEEK: 4

**SEPTEMBER
2021**

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GS-III Earth Observation Satellites (EOS) are Essential for India's National Security

GS-III Why is it difficult for India to get to net zero?

GS-III Reforms in Urban Planning: Niti Aayog Report

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- Sree Padmanabhaswamy Temple's Trust to face 25 years' Audit
- Water Seepage In Ellora Caves threatens priceless paintings

POLITY

- Education Ministry forms Committee for Development of National Curriculum Framework

GOVERNANCE

- FSSAI released 3rd State Food Safety Index

ECONOMY

- Government inaugurates National conference on Agriculture for Rabi campaign 2021
- Single Window System for Investors

ENVIRONMENT

- 'Blue Flag' tag
- Assam burns horns of one-horned rhinoceros on World Rhino Day
- WHO slashes guideline limits on air pollution from fossil fuels
- Scientists to bring back woolly mammoth

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The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

CURRENT AFFAIRS ANALYST

WEEK- 3 (SEPTEMBER, 2021)

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SECTION: A

(MAINS)

CURRENT AFFAIRS

EQUINOX 2021 ARRIVES ON SEPTEMBER 22

CONTEXT:

On September 22, most of the Earth experienced about 12 hours of daylight and 12 hours of darkness. This is known as the Fall Equinox or the September Equinox.

What is an Equinox?

- Equinox is a point in a year when the daytime and night-time are approximate of equal lengths which are 12 hours each.
- The **September equinox**, also called the **Autumnal equinox**, marks the beginning of the
 - astronomical fall season** in the **northern hemisphere**
 - astronomical spring** in the **southern hemisphere**
- It is technically not a day-long astronomical event and being a **day of equal daylight and night**.
- This phenomenon occurs two times a year, usually on March 20th and September 22nd.
- During this time, the sun is exactly above the earth's equator.
 - Equator is an imaginary line on the middle of a planet or other celestial body.
- This results in the passing of the **Terminator** or **Twilight Zone**, which is a moving line that divides the illuminated side and the dark night side of the earth to pass through the earth's north and south poles.

Terminator

- The **terminator** does not divide the planet into dark and light. The earth's atmosphere bends sunlight by 37 miles (approximately 60 km), which equals half a degree. This suggests that one half of the earth is still more lit than the other part, even on the day of an equinox.
- This unique angle causes all the areas of earth or other planets to experience almost the same amount of daylight and darkness twice every year.
- The two types of equinoxes that occur are **March Equinox** and **September Equinox**.
- In the northern hemisphere the March equinox is known as the **vernal equinox** (vernal means fresh or new like the spring), while in September, it is known as the **autumnal equinox**.
- The names are the opposite in the southern hemisphere because the seasons are switched. For example, autumn and the autumnal equinox occur in the southern hemisphere in March, when it is spring in the Northern Hemisphere.

(FIGURE: 1)

What is the significance of this event?

- Marker of seasonal change:** Like the solstices, equinoxes are the historical markers of seasonal change.
 - The March equinox is regarded as the beginning of the spring season and is considered as the rebirth and renewal time. This is the reason why many cultures celebrate the March equinox as the first day of the new year.
 - Comparatively, the September equinox marks fewer events generally associated with autumnal harvest festivals.

Correlation between the events of Solstice and Equinox:

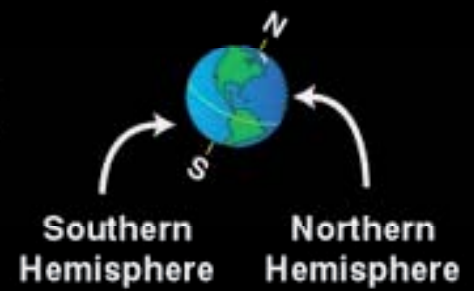
- On Summer Solstice (June 21)**, when the Sun is at its highest path through the sky and the day is the longest, it starts to follow a lower and lower path in the sky every day until it is there for about 12 hours in a day. This point in the Sun's path occurs on **September 22** and is called the **Autumnal Equinox**.
- It further continues to follow a lower and lower path through the sky (with the days getting shorter and shorter), the Sun reaches a point (called the **Winter Solstice, occurring on December 21/22**), after which it can't go any further lower.
- After the **Winter Solstice**, the sun starts following a higher and higher path through the sky until once again it is there for about 12 hours. This is the **Vernal or Spring Equinox (March 21)**.
- The sun rises for the first time in the southern pole when the sun is lying directly above the equator on September 22nd. It also marks the beginning of the **Midnight sun** in which the sun never dips below the horizon. And at the north pole, it marks the beginning of **Polar nights**. Twilight will be there at the North pole, which will remain there until sometime in October before the sun disappears below the horizons.

(FIGURE: 2)

Facts about Autumn Equinox:

- It is an instantaneous phenomenon and doesn't last for the entire day.

Earth has seasons because its axis is tilted. Earth rotates on its axis as it orbits the Sun, but the axis always points in the same direction.



December:
Summer south of the equator, winter north of the equator. The Sun shines directly on the Southern Hemisphere and indirectly on the Northern Hemisphere



March:
Fall south of the equator, spring north of the equator. The Sun shines equally on the Southern and Northern Hemispheres



June:
Winter south of the equator, summer north of the equator. The Sun shines directly on the Northern Hemisphere and indirectly on the Southern Hemisphere



September:
Spring south of the equator, fall north of the equator. The Sun shines equally on the Southern and Northern Hemispheres

(FIGURE: 1)

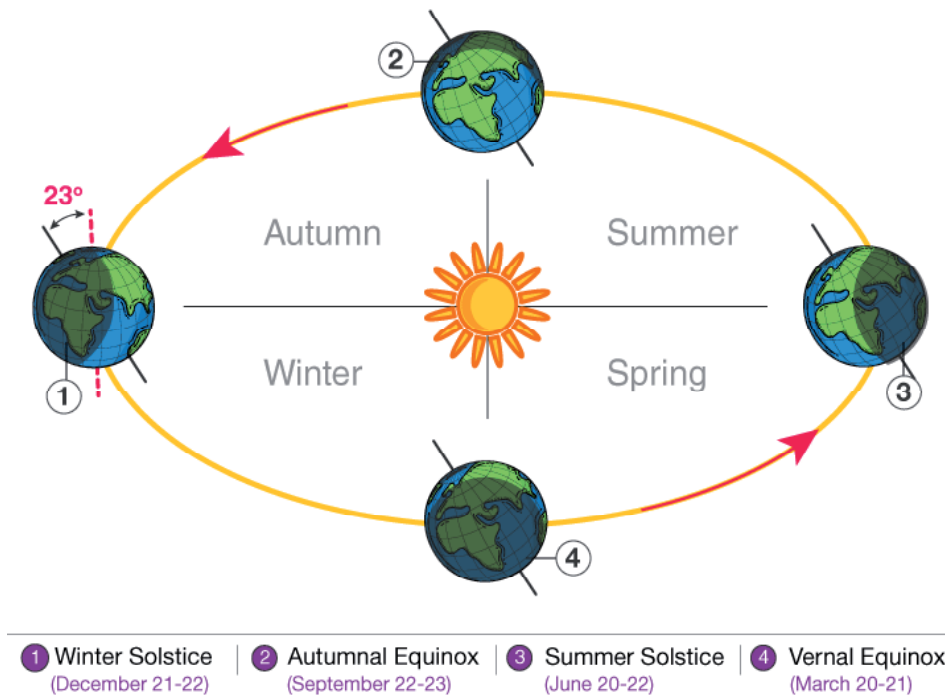


FIGURE 2: Equinox Vs Solstice

- The day and night do not exactly last for 12 hours each.
- It does not occur on a fixed day, and usually, it occurs on September 22nd or 23rd.
- It is prime time to observe Northern lights (**aurora borealis**).
- The first full moon after the Autumnal equinox is called as Harvest Moon.
- Change of seasons around the world.
- As the satellite depends on solar power to recharge its batteries, the depleted batteries and stringent thermal drop due to the absence of solar flux which also heats the satellites can disrupt the satellite functioning.
- Also, during the equinox, the background noise, provided by the Sun, blinds the reception (receiving the signals) on earth. This is known as **Sun Outage** in which the energy from the Sun disrupts the signal from a satellite.

Effect of Equinox on the functioning of Satellites:

- Geostationary satellites have an equatorial orbit. Earth's equator, as well as the earth's poles, are tilted by 23.5°. This tilt also defines the limits of Tropic of Capricorn and Tropic of Cancer in the southern and northern hemispheres.
- Due to this tilt, the geostationary satellites orbits above or below the earth's shadow and remain in sunlight continuously. But during equinox both the hemispheres get illuminated equally, resulting in the earth casting a shadow through the orbital path.
- This makes geostationary satellites to spend time in the shadow for a maximum of 72 minutes in each **eclipse season**, which lasts for 44 days.

◎ CONCLUSION:

- For a very long the ancient people have used the sky as a clock and calendar. They couldn't have done this prior understanding about the periodic phenomenon like the Sun's path across the sky, length of daylight, and location of sunrise and sunset all shifted regularly throughout the year. The event of the equinox is celebrated around the world suggesting its importance in different cultures. The **Harvest Moon** marks the beginning of the festive season in India. This full is also known as **Bhadrapada Purnima** in India and it marks the beginning of **Pitrapaksha**, the fortnight when the ancestors are remembered and worshipped.

EARTH OBSERVATION SATELLITES (EOS) ARE ESSENTIAL FOR INDIA'S NATIONAL SECURITY

CONTEXT:

There are dual implications of advanced satellite systems, from civilian use to helping out the armed forces to acquire intelligence and establish strategic superiority in the region. The use of spatial surveillance goes a long way when it comes to securing our national borders.

◎ BACKGROUND:

- Although the recent unsuccessful launch of **EOS-3** is a temporary setup to our upcoming missions like Gaganyaan, Chandrayaan-3 and NISAR, it also highlights the gap that needs to be filled in order to improve our capabilities in space surveillance to strengthen the national security in the prevailing changing geopolitical order.

◎ ANALYSIS:

What is an Earth observational satellite?

- Earth Observation (EO) satellites are designed for earth observation from space, which includes **military use** like spying and **civilian use** like, meteorology and cartography.
- These satellites make essential information available on a vast number of areas, including; ocean salinity, ice thickness, crop health, and air quality.
- The data from these satellites are used for several applications like agriculture, urban planning, rural development, mineral prospecting, environment, forestry, ocean resources and disaster management.

India's Space Program:

- Till the 1960s and 1970s kept India kept high-end space technologies as purely as peaceful.
- It was initially designed to develop communications and remote sensing satellites, to enable weather forecasting, transportation, management and conservation of natural resources and natural disasters and more.
- But the scenario changed after and India woke up to the reality of a nuclear China in 1964, with whom it had fought a war recently.
- Due to the sensitivity concerns, India abstains from talking space technology in the context of national security.
- The role of ISRO had been decisive for India's security and it had publicly stated its commitment for the future.
- Radar Imaging Satellite 2 (RISAT-2):** It is perhaps the first in the series of national security

satellites discussed in the public domain. It was launched in 2009. It uses the synthetic aperture radar for providing radar images with a resolution of one meter regardless of the time or weather conditions

- GSAT 7:** It is a multi-band military communication satellite. The Indian Navy acquired its first dedicated communications satellite, GSAT 7, in 2013. It is expected that soon Indian Army and Indian Air force will be using a similar set of satellites.
- Cartosat series:** Cartosat-1, was launched in 2005 and had a resolution of 2.5 metres. Currently, the Cartosat-3 satellites can provide a resolution better than 0.25metres.
 - It was this capability that equipped our intelligence with the required input to plan the **recent surgical strikes**.
 - The next-generation Cartosat series can provide images with a resolution better than 25 centimetres, which will enable us to detect specific objects and movements on the ground.

Needs Earth Observation Satellites:

- To counter China:** The foremost reason to have them is that the **People Republic of China** (PRC) has many of these EOS. In 2020 the troops' movement by the People Republic of China (PRC) in the Ladakh region went largely undetected because of the lack of a sufficient number of EOS. They have Gaofen series of EO satellites. The Gaofen series is also associated with its military reconnaissance missions. This is certainly a threat and we need to have a robust surveillance system in place. India has to respond to the capabilities of China with which we frequently experience border clashes.

Gaofen is a series of Chinese high-resolution Earth-imaging satellites for the state-sponsored program China High-resolution Earth Observation System (CHEOS). The first satellite in the Gaofen, Gaofen 1 was launched in 2013.

- Surveillance in the Indian Ocean Region:** In addition to the threat on its Himalayan borders

with China, there is also a significant increase in its influence in Indian Ocean Region has been reported. This need to be taken care of by the use of advanced surveillance systems.

- ◉ **To overcome limitations of drones and UAVs:** Using UAVs (unmanned aerial vehicles) and drones has its demerits as they can be shot down if the reconnaissance mission needs to be carried out over the military installations of the adversary. Whereas, the satellite imagery will have the capability to zoom into the most remote corners, which can help our security forces to take timely action and track suspicious movements.
- ◉ **Use of satellites for Border management:** India also needs to beef up its anti-infiltration grid along the Pakistan and Bangladesh border, as infiltration and smuggling along the line of control have always been a threat to national security.
- ◉ **Post-attack assessment:** This is crucial for post-attack damage assessment and will enable us to create opportunities to refine our attacks against enemy targets in the future.

Additional Information: Low altitude satellites are prone to high atmospheric drag, which results in reduced orbital shelf-life of the spacecraft. That is why having an **Earth Observation Satellites (EOS)** in Geo Transfer Orbit (GTO) is crucial for us as a satellite in Lower Earth Orbit (LEO) do help but they have a certain degree of limitations that can be overcome by using the GTO.

Area identified for the use of space technology:

- ◉ Island development and security
- ◉ Border Surveillance

- ◉ Communication and Navigation
- ◉ GIS and Operations Planning System
- ◉ Border Infrastructure Monitoring

Technology used in (EO) satellites:

- ◉ **Imagery Intelligence (IMINT):** It is an intelligence-gathering system, where the aerial images are analysed to identify information of intelligence value.
- ◉ **Synthetic Aperture Radar (SAR):** It is used to create 2 or 3-dimensional images of objects and landscapes. It is important for airborne surveillance and precision targeting. It is a day/night, all-weather imaging system and is indispensable for defence applications.
- ◉ **Electro-Optical Functions:** This system provides images for military and law enforcement agencies. It can provide automatic detection of tracking of flying objects. The functionality of the system can be enhanced by using an infra-red sensor.
- ◉ **Photo Reconnaissance:** It can fulfil a variety of requirements including artillery spotting and observation of military manoeuvres.

◎ CONCLUSION:

Our approach to space policy is now driven by national security worries as compared to morality and sovereignty during the 1980s and 1990s. Geopolitics is the new driver for India to focus on the military aspect of its space program. Our military needs Earth Observation (EO) satellites to confront challenges from China. A glance over China's Earth Observation (EO) capabilities is enough to understand why India needs more of them and must consider it as a strategic investment.

WHY IS IT DIFFICULT FOR INDIA TO GET TO NET ZERO?

CONTEXT:

On his recent visit to India ahead of the U.N. Climate Change conference in Glasgow, U.S. Special Presidential Envoy for Climate John Kerry said he had not received any assurance that India was working to raise its ambition to cut carbon dioxide emission.

◎ ABOUT

- The COP 26 UN Climate Change conference, to be hosted by the UK in partnership with Italy, will be held from 31 October to 12 November 2021 at the **Scottish Event Campus (SEC)** in **Glasgow**, UK.
- Contrary to the shape of the **Intergovernmental Panel on Climate Change** which sounds like "red" in climate change, India will be under a lot of pressure from the West at a climate summit in Glasgow in November and, most likely, before it declared some kind of 'zero' commitment.
- However, if the government actually intends to reject any such demands and provide more weather action than a commitment that would be the right approach.

What is the target of Net-zero output?

- Net-zero emissions are a way of measuring the release of heat gas into the atmosphere by the absorption of greenhouse gases from the atmosphere.
- In zero-carbon combustion, the country will focus on reducing carbon emissions. But in Net-zero carbon the country will focus on bringing carbon emissions to zero.
- In the first phase, the country will focus on reducing human emissions such as burning mineral fuels, measuring factory emissions, etc.
- Gradually, however, net-zero releases can be extended to other remaining locations.
- Globally the idea of net-zero emissions by 2050 is gaining momentum. It is being advised by many countries as a solution to tackling climate change.
- To date 58 countries have announced targets for zero emissions. Together these countries make up more than half of the current GHG emissions worldwide.
- Over the next 30 years, they all aim to reduce emissions of carbon dioxide and other GHGs. There are requests from international forums that India also needs to accept the release of net-zero emissions.
- But there are other environmental factors that do not allow you to accept the objectives of the Net-

zero release. They say it's not fair in developing countries.

Indian Climate actions

- India is expected to significantly exceed the Paris Agreement's commitment to reduce its GDP emissions by 33-35% below 2005 levels by 2030.
- **Emphasis on renewal:** India impresses the world with its leading renewable energy output and target of 450GW by 2030, linked to its leadership in the International Solar Alliance and the latest national hydrogen strategy.
- **Businesses:** Indian companies are also on the rise, with Tata team winning awards for sustainability, Mahindra is committed to net-zero by 2040, and Reliance by 2035.
- In addition to logical arguments about historical obligation, individual exclusion, and equality, India's national interests in climate action are now operating in more efficient ways than waiting for donor support to create prominence.

Why achieving net zero emissions are not easy for India?

- The country is trying to balance its growing energy needs with demands to slash emissions, which could make the goal of achieving carbon neutrality difficult.
- The International Energy Agency (IEA) forecasts that India's energy demands will grow more than any other country over the next 20 years. By 2030, it is expected to overtake the European Union as the third biggest energy consumer.
 - ▶ Although renewable energy's share in India's energy mix is increasing, coal accounts for almost 70 per cent of the country's electricity generation, according to the IEA. It plays a major role in global warming and contributes to deadly air pollution.

India is the world's third-biggest emitter of GHG.

- India's per capita CO₂ emissions – at 1.8 tonnes per person in 2015 – are around a ninth of those in

the USA and around a third of the global average of 4.8 tonnes per person.

- India must also meet the aspirations of 1.4 billion people for faster economic development. This will limit India's development potential.
- Meeting the nation's existing target of 450 gigawatts of renewables by 2030 is already a massive lift. Hitting net zero will require an even more dramatic acceleration.
- By 2050, India's total electricity demand would be about 5500 to 6000 terawatt-hours (TWh), roughly a factor of five on today's level.
- In developed countries, emissions have already peaked. Their decision is only about the path to net-zero. Emerging economies like India, instead, will go through a high-growth phase with rising energy demand and emissions. So, before a net-zero year can be targeted, India must discuss options for its peaking year
- Many argue that net zero is not equitable and fair as it does not differentiate between developing and developed countries in sharing the burden of mitigation.
- Some also criticise mid-century net zero as allowing uncontrolled emissions today while relying on uncertain technologies to offset emissions in the future.
- Many net zero pledges are premised upon trading and offsetting emissions, allowing the rich to continue emitting and buying their way out.

Suggestive measures

- Given the massive shifts underway in India's energy system, we would benefit from taking stock of our actions and focusing on near-term transitions.

- This will allow us to meet and even over-comply with our 2030 target while also ensuring concomitant developmental benefits, such as developing a vibrant renewable industry.
- We can start putting in place the policies and institutions necessary to move us in the right direction for the longer-term and also better understand, through modelling and other studies, the implications of net-zero scenarios before making a net-zero pledge.
- It would also be in India's interest to link any future pledge to the achievement of near-term action by industrialised countries.
- That would be fair and consistent with the principles of the UNFCCC and also enhance the feasibility of our own actions through, for example, increasing availability and reducing costs of new mitigation technologies.

◎ CONCLUSION:

- The world is not going to achieve its targets of halting global warming unless India is able to reduce its carbon emissions and India changes its trajectory right now. India is now rightly recognised for having come of age and becoming a major global power. But coming of age also brings with it the ability to take a stand, and resist being buffeted by the winds of shifting political agendas. While we, like others, have a responsibility to the international community, we also have a responsibility to our citizens to be deliberate and thoughtful about a decision as consequential as India's climate pledge.

REFORMS IN URBAN PLANNING: NITI AAYOG REPORT

CONTEXT:

A report on measures to ramp up urban planning capacity in India was launched by NITI Aayog

● ABOUT

- The report has been developed by NITI Aayog, in consultation with concerned ministries and eminent experts in the domain of urban and regional planning.
- It underscores urban challenges, including town planning and emphasizes need greater policy attention in our country.

Why such report?

- In the coming years, urban India will power the growth of the Indian economy. Urban challenges, including town planning, need greater policy attention in our country. There is a compelling need to plug the gaps in urban planning capacity in the country, else a huge opportunity for rapid, sustainable and equitable growth would be at risk of being missed.
- Urbanization is the driving force of the Indian economy. The country has reached a turning point in its transformation. It will be half urban in a couple of decades. This is the first time in the history of India that the question of urban planning capacity has been dealt with in depth.
- However, Greater synergies among the public and private sectors and education institutions will provide a massive boost towards making Indian cities more liveable, competitive, and sustainable.

Need of Reforms in Urban Planning Capacity

- India is home to 11% of the total global urban population. By 2027, India will surpass China as the most populous country in the world. Unplanned urbanization, however, exerts great strain on our cities. In fact, the Covid-19 pandemic has revealed the dire need for the planning and management of our cities.
- Urban planning is the foundation for an integrated development of cities, citizens, and the environment. Unfortunately, it has received due attention so far. The existing urban planning and governance framework is complex, which often leads to ambiguity and lack of accountability.

Highlight of the report

The report makes several recommendations that can unblock bottlenecks in the value chain of urban planning capacity in India. Some of them are:

- **Programmatic Intervention for Planning of Healthy Cities:** Every city must aspire to become a 'Healthy City for All' by 2030. The report recommends a Central Sector Scheme '500 Healthy Cities Programme', for a period of 5 years, wherein priority cities and towns would be selected jointly by the states and local bodies.
- **Programmatic Intervention for Optimum Utilization of Urban Land:** All the cities and towns under the proposed 'Healthy Cities Programme' should strengthen development control regulations based on scientific evidence to maximize the efficiency of urban land (or planning area). The report recommends a sub-scheme 'Preparation/Revision of Development Control Regulations' for this purpose.
- **Ramping Up of Human Resources:** To combat the shortage of urban planners in the public sector, the report recommends that the states/UTs may need to a) expedite the filling up of vacant positions of town planners, and b) additionally sanction 8268 town planners' posts as lateral entry positions for a minimum period of 3 years and a maximum of 5 years to meet the gaps.
- **Ensuring Qualified Professionals for Undertaking Urban Planning:** State town and country planning departments face an acute shortage of town planners. This is compounded by the fact that in several states, ironically, a qualification in town planning is not even an essential criterion for such jobs. States may need to undertake requisite amendments in their recruitment rules to ensure the entry of qualified candidates into town-planning positions.
- **Re-engineering of Urban Governance:** There is a need to bring in more institutional clarity and also multi-disciplinary expertise to solve urban challenges. The report recommends the constitution of a high-powered committee to re-engineer the present urban-planning governance structure.
- The key aspects that would need to be addressed in this effort are:
 - ▶ Clear division of the roles and responsibilities of various authorities, appropriate revision of rules and regulations, etc.
 - ▶ creation of a more dynamic organizational structure, standardisation of the job descriptions of town planners and other experts, and

- Extensive adoption of technology for enabling public participation and inter-agency coordination.
- **Revision of Town and Country Planning Acts:** Most States have enacted the Town and Country Planning Acts that enable them to prepare and notify master plans for implementation. However, many need to be reviewed and upgraded. Therefore, the formation of an apex committee at the state level is recommended to undertake a regular review of planning legislations (including town and country planning or urban and regional development acts or other relevant acts).
- **Demystifying Planning and Involving Citizens:** While it is important to maintain the master plans' technical rigour, it is equally important to demystify them for enabling citizens' participation at relevant stages. Therefore, the committee strongly recommends a 'Citizen Outreach Campaign' for demystifying urban planning.
- **Steps for Enhancing the Role of Private Sector:** The report recommends that concerted measures must be taken at multiple levels to strengthen the role of the private sector to improve the overall planning capacity in the country. These include the adoption of fair processes for procuring technical consultancy services, strengthening project structuring and management skills in the public sector, and empanelment of private sector consultancies.
- **Steps for Strengthening Urban Planning Education System:** The Central universities and technical institutions in all the other States/UTs are encouraged to offer postgraduate degree programmes (MTech Planning) to cater to the requirement of planners in the country in a phased

manner. The committee also recommends that all such institutions may synergize with Ministry of Rural Development, Ministry of Panchayati Raj and respective state rural development departments/directorates and develop demand-driven short-term programmes on rural area planning.

- **Measures for Strengthening Human Resource and Match Demand-Supply:** The report recommends the constitution of a 'National Council of Town and Country Planners' as a statutory body of the Government of India. Also, a 'National Digital Platform of Town and Country Planners' is suggested to be created within the National Urban Innovation Stack of MoHUA. This portal will enable self-registration of all planners and evolve as a marketplace for potential employers and urban planners.

Additional Information

- All India Survey on Higher Education (AISHE)
 - Released annually by the Department of Higher Education.
 - Recently, the 10th series was released as the report of All India Survey on Higher Education (AISHE) 2019-20.
 - This Report provides key performance indicators on the current status of Higher education in the country.
 - It is the 10th in the series of AISHE
- All India Council for Technical Education
 - It is a statutory body, and a national-level council for technical education, under the Department of Higher Education.
 - It regulates technical education in India.

LOW ETHICAL STANDARDS ARE COMMON IN MEDICAL EDUCATION IN INDIA

CONTEXT:

Prevention of patients from exploitation and protecting their human rights is the aim of modern medical ethics but the objectionable attitude of Indian doctors towards informed consent is a worrying trend.

◎ BACKGROUND:

- It's not very long when the doctors and researchers of the country were trying to grapple with the SARS-CoV-2 variant, and douse the flames of Covid-19.
- That was the time when the issue of informed consent by the marginalised participants in the clinical phase-3 trial of the Covaxin got emerged.
- And this is not a standalone case of unethical medical practice, there are many others.

◎ ANALYSIS:

- It makes sense, to begin with, the Hippocratic Oath, that most doctors pledge to adhere in his or her practice. It was developed by the Greek physician Hippocrates some 2,500 years ago, shaping the principles of medical ethics. It demonstrates the ethical principles of beneficence, non-maleficence and confidentiality. Despite this, there are reasonable practical implications where clear divergence forms the minutes of the oath cannot be ignored.

Instances of ethical divergence:

- Medical students introducing themselves as doctors:** In a survey at the BPS Medical College, Bhopal, it was found that 20 percent of the medical students believed that patients need not to know about the qualification of their doctors. And as the same time, it is common for medical students to introduce themselves as a doctor while interacting with the patients. This stance has its own ethical and legal implications.
 - Clinical Implication:** The possibility that the mentioned doctor may not be knowing the answers to every question of their patient cannot be ruled out. This makes the patient mistrustful about the hospital as well as the prescribed treatment because the patient can perceive that the doctor does not know enough about his ailment.
 - Legal Implications:** A medical student in the eyes of law is not qualified to provide treatment or to suggest intervention but still they might do so in order to escape from being

embarrassed in front of their patients.

- Patients being evaluated by a parade of medical students:** In many Indian hospitals it's common to evaluate patients by a parade of medical students, and each one claims to be a doctor. The outcomes are many.
 - Feeling of Mistrust:** Although the whole exercise, solely meant to evaluate the patients for the purpose of learning but they are either unaware of it or has not been asked for consent may reason that the doctors were not able to diagnose the ailment and compel him to consult another doctor.
 - Feeling of Humiliation:** The patient who is either recuperating or struggling with the ailment often gets the feeling of him getting subjected to humiliation, where he is being treated as a "doctors' toy".
- Induction of marginalised people for phase 3 trial of Covaxin:** In Bhopal marginalised and illiterate people were inducted in phase 3 clinical trial of Covaxin without their consent and with promises of money.

The core reason behind this problem: It is the consent

- Medical practice these days cannot be seen in the absence of various factors influencing the doctor-patient relationship. The concept of consent is the foundation stone of the relation that a medical practitioner and the patient mutually share with each other.
- The patient has a legal right to autonomy and self-determination enshrined within Article 21 of the Indian Constitution. He can refuse treatment except in an emergency situation where the doctor need not get consent for treatment.
- The concept of consent comes into existence from the principle of **patient autonomy** and **basic human rights**.

Patient autonomy: It talks about the freedom of patients to decide about his/her medical care and to gather information before undergoing any procedure/test/surgery. Patient autonomy does allow for doctors to educate the patient but the doctor can only act as a facilitator in the whole process.

Types of Consent in the field of medicine:

- **Implied consent:** The moment a patient enters the doctor's room and expresses its problem is considered as an implied or implicit consent for the purpose of treatment or routine examination.
- **Expressed consent:** On the contrary invasive tests, intimate examination and procedures involving risks require a specific expressed consent. It is generally given in writing to the doctor.
- **Informed consent:** It is a process where the participants or the patients are informed about the trial (clinical), which is important for the participants to make a decision that voluntarily confirms his or her consent to participate in a trial. This amount to truthfully providing accurate, adequate and relevant information in simple language that the patient can understand.

The problem in India:

- **Objectionable attitudes:** Despite being trained to understand the importance, the doctors continue to show objectionable attitudes the informed consent. There is a need for doctors to change their attitude and acknowledge the **patient's autonomy**. It's not easy to know the truth as the trial researchers simply state that, they do have informed consent.
- **Dysfunctional system:** In general, the Indian medical ecosystem disregards **patients' rights**. This argument can be supported by sighting a survey of doctors in North India, in 2013. It was concluded that 90 percent of doctors believe that the health status of patients necessarily is disclosed to their close relatives irrespective of consent.

Possible solution:

- National Medical Commission (NMC) **new MBBS curriculum** includes 'attitudes, ethics and

communication'. It aims at producing doctors who practise ethical medicine.

- The doctors need to explore the practical implications of unethical medicine in a clinical setting as making them to study the theories involved will only do justice to studies ahead of the exam and not more than that.
- The doctors in government hospitals need to pay attention to patient privacy and avoid consulting more than one patient at a time.
- Doctors should refrain from disclosing their patient's personal information like their names, place of residence, educational level and profession while doing intramural case presentations or discussing the case with peers or colleagues.
- The government of India is also planning to launch a **National eHealth Authority** which will work towards enforcing the standards to ensure security, confidentiality and privacy of patient's health information and records.
- A significant part of the Indian population is marginalised & vulnerable, so a proper framework and protocol that is bidding to the doctors are essential, particularly in public sectors hospitals that cater to the people particularly living on the fringes of society.
- The security of the personal data of the patient must be secured through the use of administrative and technological control. The **Health data management policy** of the National Digital Health Mission (NDHM) sets the minimum standard for data privacy protection. It has the potential to improve the transparency and effectiveness of health services in India.

◎ CONCLUSION:

- Consent is a lawful right of a patient that makes a decision their involvement in clinical procedures. The knowledge and approach of consent are foremost important for the general population as well as to the medical field practitioners. Thus, it is impossible to expect a change without increasing the awareness among patients about their rights and alongside placing stronger laws that can ensure that the doctors or the health care providers do the right thing.

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COVERED****6****STUDY
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SECTION: B

(PRELIMS)

CURRENT AFFAIRS

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SREE PADMANABHASWAMY TEMPLE'S TRUST TO FACE 25 YEARS' AUDIT

◎ **CONTEXT:**

Recently, the Supreme Court (SC) has declined a plea filed by Sree Padmanabhaswamy Temple Trust seeking to exempt it from the audit of 25 years as ordered by the court last year (2020).

About Sree Padmanabhaswamy Temple

- The temple dates back to the 8th century but the present structure was built in the 18th century by the then **Travancore Maharaja Marthanda Varma**.
- Sree Padmanabhaswamy temple is a Hindu temple dedicated to Lord Vishnu.
- Sree Padmanabhaswamy Temple is one of 108 Divya Desams (holy abodes of Vishnu) - principal centres of worship of the deity in Vaishnavism.
 - The temple gave its name to Kerala's capital Thiruvananthapuram.
- Padmanabhaswamy Temple, one of the richest shrines in the world, has 6 underground vaults called Vault A, Vault B, Vault C, Vault D, Vault E and Vault F.
 - These vaults are also called **chambers**, which are full of royal treasure worth in billions.
 - Padmanabha Swamy Temple has chambers that consist of royal treasure.

The Issue

- The temple had been at the centre of a tussle over its control for decades.
- The dispute was finally resolved in 2020 when the Supreme Court overturned a 2011 decision by the **Kerala High Court**.
 - Kerala HC handed responsibility for its administration to the state government and restored the status of the royals as the shebais, or servitors, of the temple.
- But the case also brought the temple's finances and wealth into the spotlight.
- The apex court has now ruled that the trust, too, is to be audited for the 25-year period.
- History & Culture

WATER SEEPAGE IN ELLORA CAVES THREATENS PRICELESS PAINTINGS

◎ **CONTEXT:**

The September downpour has led to water seepage in the cave number 32 of the world renowned Ellora Caves for the first time. It led to some damage to the paintings.

About cave number 32

- Cave 32 is a Jain cave situated to the north of Kailasa Temple in Ellora.
- Known as the **Indra Sabha**, it is the largest and finest of all Jain temples in Ellora.
- It is a two-storey architectural marvel excavated in the **ninth century**.
 - The ground floor is plain, but the upstairs has intricate carvings.

Jain Caves at Ellora

- There are five Jain Caves at Ellora belong to the 9th and 10th centuries AD. They all belong to the **Digambara sect**.
- Jain Caves reveal specific dimensions of Jain philosophy and tradition. The most remarkable Jain shrines are the Chhota Kailash (Cave 30), the Indra Sabha (Cave 32) and the Jagannath Sabha (Cave 33)

**Ellora Caves**

- **Location:** It is located nearly 100 Kms away from Ajanta caves in the Sahyadri range of Maharashtra.
- **Number of Caves:** It is a group of 34 caves – **17 Brahmanical, 12 Buddhist and 5 Jain**.
- **Time of Development**
 - These sets of caves were developed during the period between the 5th and 11th centuries A.D. (newer as compared to Ajanta Caves) by various guilds from Vidarbha, Karnataka and Tamil Nadu.
 - That is why the caves reflect a natural diversity in terms of theme and architectural styles.
- **UNESCO Site:** The Ellora complex was designated a **UNESCO World Heritage site** in 1983.
- The most remarkable of the cave temples is **Kailasa (Kailasanatha; cave 16)**, named for the mountain in the **Kailasa Range** of the Himalayas where the Hindu god Shiva resides.
- The management of the Ellora Caves is carried out by the **Archaeological Survey of India (ASI)**, while the buffer zones are jointly managed by the **ASI**, the **Forest Department**, and the **Government of Maharashtra**.

EDUCATION MINISTRY FORMS COMMITTEE FOR DEVELOPMENT OF NATIONAL CURRICULUM FRAMEWORK

- ◎ **CONTEXT:** The Union education ministry constituted a 12-member national steering committee to develop the new national curriculum framework (NCF) in line with the National Education Policy (NEP) 2020.

What is NCF?

- The national curriculum framework (NCF) serves as a guideline for syllabus, textbooks, teaching and learning practices in the country.
- Currently, NCF 2005, fourth national curriculum framework is being followed in the country.
- Its predecessors were published in 1975, 1988, 2000.

National steering committee

- The Committee will be headed by **K Kasturirangan** who also headed the drafting committee of **national education policy (NEP) 2020**.
- **Tenure:** 3 years.
- The Director NCERT will assist the Steering Committee to complete its module.
- The committee will develop four curriculum frameworks --
 - National curriculum framework for school education
 - National curriculum for early childhood care and education
 - National curriculum framework for teacher education
 - National curriculum framework for adult Education
- All the National Curriculum Frameworks will also reflect upon the implications of situations such as COVID-19 Pandemic on respective areas for future.

National Education Policy 2020

- India's national education policy was revised after 34 years to meet the changing needs of Indian and international education standards.
- The primary objective of NEP 2020 was to reduce undue focus on the Class 10 and Class 12 board exams.
- NEP 2020 envisaged a system where schools and higher education institutes would allow students to pick and choose subjects based on their interests and aptitude.

FSSAI RELEASED 3RD STATE FOOD SAFETY INDEX

© CONTEXT:

3rd State Food Safety Index (SFSI) of the Food Safety and Standards Authority of India (FSSAI) has been recently released.

About State Food Safety Index

- The index is developed by FSSAI (Food Safety and Standards Authority of India) to measure the performance of states on five significant parameters of Food Safety.
- **Five parameters of food safety:**
 - human resources and institutional data
 - compliance
 - food testing facility
 - training
 - capacity building besides consumer empowerment

- The first State Food Safety Index for the year 2018-19 was announced on the first-ever World Food Safety Day on 7th June 2019.

States ranking in the Index

- **Larger states:** Gujarat was the top ranking state, followed by Kerala and Tamil Nadu.
- **Smaller states:** Goa stood first followed by Meghalaya and Manipur.
- **UTs:** Jammu & Kashmir, Andaman & Nicobar Islands and New Delhi secured top ranks.

Significance of food safety

- Food safety helps to protect consumers from the risk of food borne illnesses.

Food borne illnesses

- Food borne illnesses are usually infectious or toxic in nature.
- They are caused by bacteria, viruses, parasites or chemical substances entering the body through contaminated food or water.
- An estimated 4,20,000 people around the world die every year after eating contaminated food and children under 5 years of age carry 40% of the foodborne disease burden, with 1,25, 000 deaths every year.

- It also helps to prevent consumers from risks of health –related conditions such as allergy and even death.
- It also protects food processing establishments from product recalls which results in financial losses due to unsafe products.

Important facts

- **World Food Safety Day** is observed on June 7.
- In India, the **Food Safety and Standards Authority of India (FSSAI)** is the apex food safety body.
- In October 2016, FSSAI operationalized Food Safety and Standards (Fortification of Foods) Regulations, 2016 to fortify staples, to reduce the high burden of micronutrient malnutrition, namely
 - Wheat Flour and Rice (by Iron, Vitamin B12, and Folic Acid)
 - Milk and Edible Oil (by Vitamins A and D)
 - Double Fortified Salt (through Iodine and Iron)
- **'+F' logo** has been notified for the identification of fortified foods.

GOVERNMENT INAUGURATES NATIONAL CONFERENCE ON AGRICULTURE FOR RABI CAMPAIGN 2021

◎ CONTEXT:

In order to assess the crop performance, the Government inaugurated the National conference on Agriculture for Rabi campaign 2021.

Key-highlights of the Conference

- During the conference, discussions were held on-
 - To review and assess the crop performance during the preceding crop season

- To fix crop-wise targets for Rabi season in consultation with State Governments
- To ensure supply of critical inputs
- To facilitate adoption of innovative technologies with a view to enhance production and productivity of the crops.
- The priority of government is to increase production of oilseeds and pulses.

Rabi crops

- Rabi crops, also known as winter crops, are the crops grown in the winter season (October or November).
- Main rabi crops include wheat, gram, oat, barley, potato, and seeds like mustard, linseed, sunflower, coriander, cumin, etc.

Key differences between Kharif and Rabi crops:

	Kharif Crops	Rabi Crops
About	Kharif crops are the crops which are sown at the beginning of the rainy season, e.g. between April and May.	Rabi crops are the crops that are sown at the end of monsoon or at the beginning of winter season, e.g. between September and October.
Type	Monsoon crops	Winter or spring crops
Example	rice, maize, cotton, jowar, bajra etc.	wheat, gram, peas, barley etc.
Weather	It requires a lot of water and hot weather to grow.	A warm climate is required for seed germination and cold climate for the growth of crops.
Harvesting months	September to October	March to April

Recent government initiatives for Agriculture

- For the 2020-21 crop year, the Centre has set a target of a record foodgrains output of 301 million tonne, out of which it expects 151.65 million tonne to come from the rabi season.
- Formation of 10,000 **Farmer Producers Organisations (FPOs)**
- Rs 1 lakh crore **Agriculture Infrastructure Fund (AIF)**
- Pradhan Mantri Annadata Aay Sanrakshana Abhiyan (PM-AASHA)
- National Mission on Edible Oils-Oil Palm (NMEO-OP)

SINGLE WINDOW SYSTEM FOR INVESTORS

◎ CONTEXT:

In a bid to improve Ease of Doing Business (EoDB), the Commerce and Industry Ministry launched the National Single Window System (NSWS).

What is NSWS?

- The single window portal is going to be a one-stop-shop for investors for approvals and clearances.

- Department for Promotion of Industry and Internal Trade (DPIIT) along with Invest India initiated the process of developing the portal as a **National Single Window System (NSWS)**.
 - **DPIIT** comes under the **Ministry of Commerce and Industry**.
 - **Invest India** is the **National Investment Promotion and Facilitation Agency** of India and acts as the first point of reference for investors in India.

The need

- The NSWS would "usher in Azadi" from legacy of running to government offices, from paperwork, duplication and information asymmetry
- The National Single Window System is envisioned to address
 - information asymmetry
 - duplication of information submitted across platforms and authorities
 - in-efficient tracking of approvals and registration faced by investors.
- Launch of the National Single Window System is a giant leap towards making India Atma Nirbhar [self-reliance].

Significance of the portal

- The portal would bring transparency, accountability and responsiveness in the ecosystem.
- All information will be available on a single dashboard bring ease in the progress.
 - An applicant dashboard would be there on the portal to apply, track and respond to queries.
- The portal will provide investors services such as know-your-approval (KYA), common registration, state registration, document repository, and e-communication.

'BLUE FLAG' TAG

◎ CONTEXT:

Kovalam beach in Tamil Nadu and Eden beach in Puducherry have been granted Blue Flag certification.

The newly certified beaches

- **Kovalam Beach** is located on the coastline of the Bay of Bengal near the village Covelong in the Kanchipuram district about 40 kilometres away from Chennai.
- **Eden Beach** is situated in Chinna Veerampattinam near Puducherry.
- With this latest addition, India now has 10 beaches which have received the Blue Flag Tag. Previously certified beaches in India are as given below:
 - Shivrajpur in Gujarat
 - Ghoghla in Diu
 - Kasarkod
 - Padubidri in Karnataka
 - Kappad in Kerala
 - Rushikonda in Andhra Pradesh
 - Golden in Odisha
 - Radhanagar in Andaman and Nicobar

What does Blue Flag status mean?

- The Blue Flag is one of the world's most recognized voluntary **eco-labels** awarded to beaches, marinas and sustainable boating tourism operators.
- To qualify for a Blue Flag, a series of stringent environmental, educational, safety and accessibility criteria must be fulfilled and maintained.
- A waving "Blue Flag" is an indication of 100% compliance to these 33 stringent criteria and sound health of the beach. These criterias are divided into 4 major heads namely-
 - Environmental education and information
 - Bathing water quality
 - Environmental management
 - Conservation and safety services in the beaches
- The Blue Flag programme was started in France in 1985 and in areas out of Europe in 2001.

Who gives this award?

- Foundation for Environment Education (FEE) in Denmark awards the certification.
- It is accorded by International Jury comprising of members from IUCN, UNWTO, UNEP, UNESCO etc.

Foundation for Environment Education (FEE)

- FEE is the world's largest environmental education organisation, with members in 77 countries.
- It is a non-governmental, non-profit organisation promoting sustainable development through environmental education.
- The organization is active in five programmes:
 - Blue Flag
 - Eco-Schools
 - Young Reporters for the Environment (YRE)
 - Learning about Forests (LEAF)
 - Green Key International

Indian initiatives for sustainable development of coastal regions

- Beach Environment & Aesthetics Management Services (BEAMS)
- Integrated Coastal Zone Management (ICZM) initiatives

ASSAM BURNS HORNS OF ONE-HORNED RHINOCEROS ON WORLD RHINO DAY

◎ CONTEXT:

Assam marked World Rhino Day (September 22) with a special ceremony by burning a stockpile of nearly 2,500 horns of the one-horned rhinoceros.

About Rhino

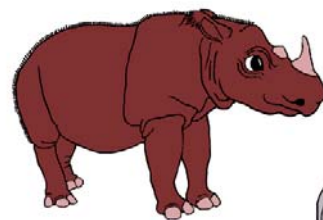
- **White, Black, Indian, Javan, and Sumatran** make up the five species of rhino in the world.

- White and black rhinoceros are native to **Africa**
- Indian, Javan and Sumatran can be found in **India and Asia**.
- **Habitat:** The animal is primarily found in the Himalayan foothills — India and Nepal.
- **World Rhino Day** is celebrated on **September 22** to make people more aware about rhinos and promote its conservation.

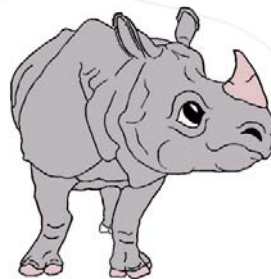
Conservation Status

- The IUCN lists the one-horned rhino, also known as the **Indian rhinoceros**, as a **vulnerable** species.

the FIVE species of rhinoceros



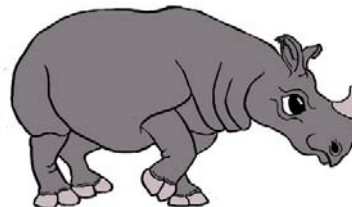
Sumatran rhino



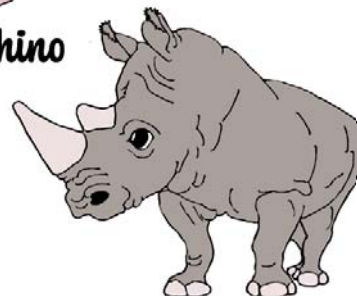
Greater one-horned rhino



Black rhino



Javan rhino



White rhino

Vulnerable (VU), a category containing those species that possess a very high risk of extinction as a result of rapid population declines of 30 to more than 50 percent over the previous 10 years (or three generations), a current population size of fewer than 1,000 individuals, or other factors.

- Rhinoceros are listed in **Schedule 1** of the **Wildlife (Protection) Act, 1972**, as endangered animals.
- The Wildlife Protection Act, 1972 allows for destruction of wildlife parts (including rhino horn) under Section 39 (3).
- There is an international ban on trade of rhino horns under the **Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)**.

Population of Rhino

- At 71%, Assam is home to the world's largest population of one-horned rhinoceros.
- According to a 2018 census, there are nearly 2,650 rhinos in the state with around 2,400 of them in the **Kaziranga National Park**.

- 101 in **Orang National Park**
- 102 in **Pobitora Wildlife Sanctuary**
- 43 in the **Manas National Park**

What is the purpose of the ceremony?

- The main purpose of this ceremony is aimed at “busting myths about rhino horns”
- It's a loud and clear message to the poachers and smugglers that such items have no value.
 - However, in the illegal market such horns can fetch a high price.

WHO SLASHES GUIDELINE LIMITS ON AIR POLLUTION FROM FOSSIL FUELS

◎ CONTEXT:

The World Health Organization has cut its recommended limits for air pollution, for the first time since 2005.

Key highlights

- The new recommendations targeting pollutants including particulate matter and nitrogen dioxide, both of which are found in fossil fuel emissions.
- **NO₂**: The new limit for nitrogen dioxide (NO₂), mainly produced by diesel engines, is now 75% lower.
- **PM 2.5**: Under the new guidelines, the WHO halved the recommended limit for average annual PM_{2.5} level from 10 micrograms per cubic meter to 5.
- **PM 10**: It also lowered the recommended limit for PM₁₀ from 20 micrograms to 15.
- These guidelines not legally-binding.

WHO's 2005 guideline

- The 2005 WHO Air quality guidelines offer global guidance on thresholds and limits for key air pollutants that pose health risks.
- The Guidelines indicate that by reducing particulate matter (PM₁₀) pollution from 70 to 20 micrograms per cubic metre (µg/m), we can cut air pollution-related deaths by around 15%.

Air pollution, the greatest environmental threat

- Air pollution kills at least 7 million people prematurely each year.
- In 2019, a full 90% of the global population was breathing air considered unhealthy by the 2005 guidelines.
- India, still have national standards that are looser than those 2005 recommendations.

NAAQS

India last revised its **National Ambient Air Quality Standards** in 2009 —setting annual averages for

- PM_{2.5} (40 µg/m³)
- PM₁₀ (60 µg/m³)
- NO₂ (40 µg/m³)

About the Organization

- Founded in 1948, WHO is the United Nations agency.
- It connects nations, partners and people to promote health, keep the world safe and serve the vulnerable – so that everyone, everywhere can attain the highest level of health.
- **Headquarters:** Geneva, Switzerland
- India is a **member** state of the **South East Asia Region** at the WHO.

SCIENTISTS TO BRING BACK WOOLLY MAMMOTH

◎ CONTEXT:

Scientists are planning to bring the woolly mammoth back to life with the help of CRISPR gene-editing technology to insert an extinct mammoth's DNA into the genome of an Asian elephant.

About the species

- Woolly mammoths went extinct around 4,000 years ago at the end of the last "ice-age".

Ice Age

- An ice age is a period of **colder-than-usual global temperatures** and bigger-than-usual glaciers and ice sheets.
- The Ice Ages began 2.4 million years ago and lasted until 11,500 years ago.
- The latest ice age peaked about 20,000 years ago, when global temperatures were likely about 10°F (5°C) colder than today.
- In addition to the woolly mammoth, mammals such as saber-toothed cats (Smilodon), giant ground sloths (Megatherium) and mastodons roamed the Earth.

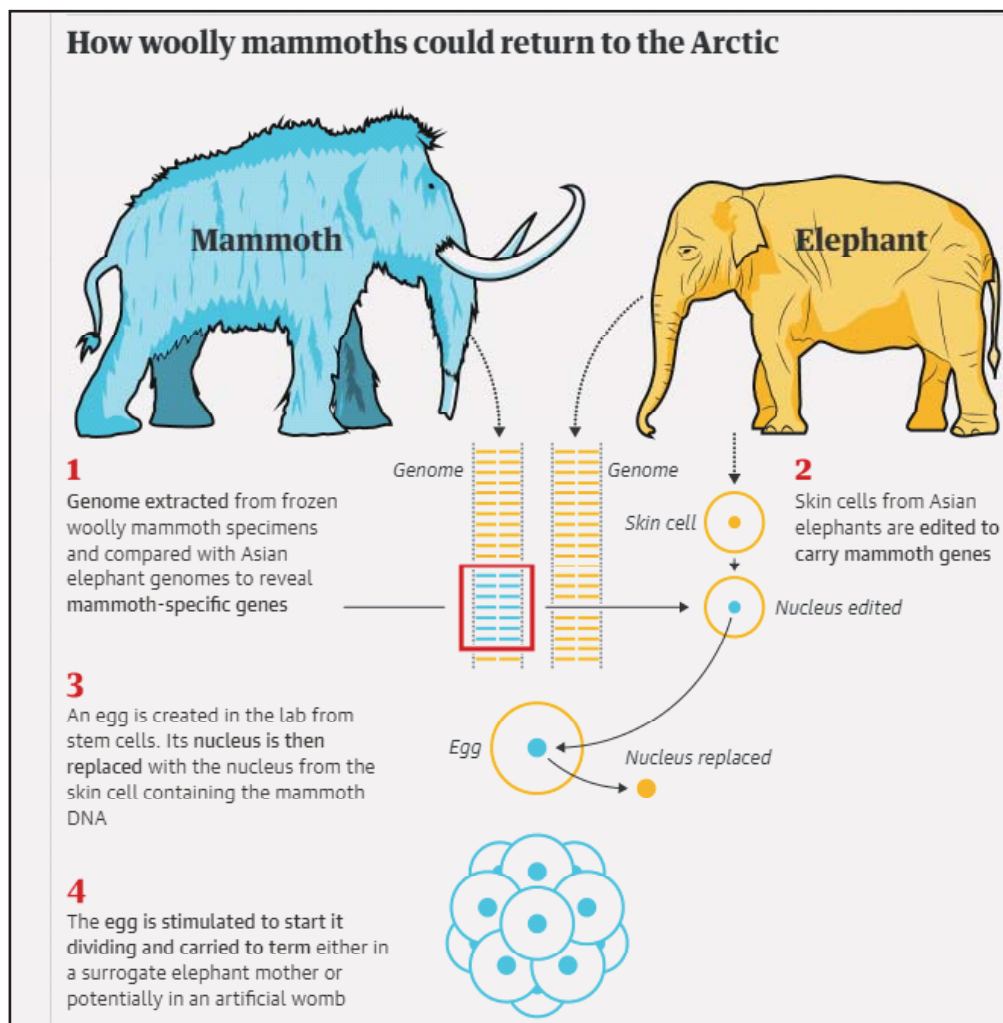
- They may have died off when the weather became warmer and their food supply changed.
- Their ears were smaller than those of today's elephants. This was probably an adaptation to the cold climate that kept their ears closer to their heads and kept them warmer.
- Their tusks were very long, about 15 feet (5 meters) and were used for fighting and digging in the deep snow.
- Mammoths were herbivores and ate mostly grass, but also ate other types of plants and flowers.

The process

- The DNA, collected from mammoth tusks, bones and other preserved body parts found in ice, will be sequenced to create an "elephant-mammoth hybrid".
- It would look like a furrier, larger elephant with smaller ears and a high-domed head.

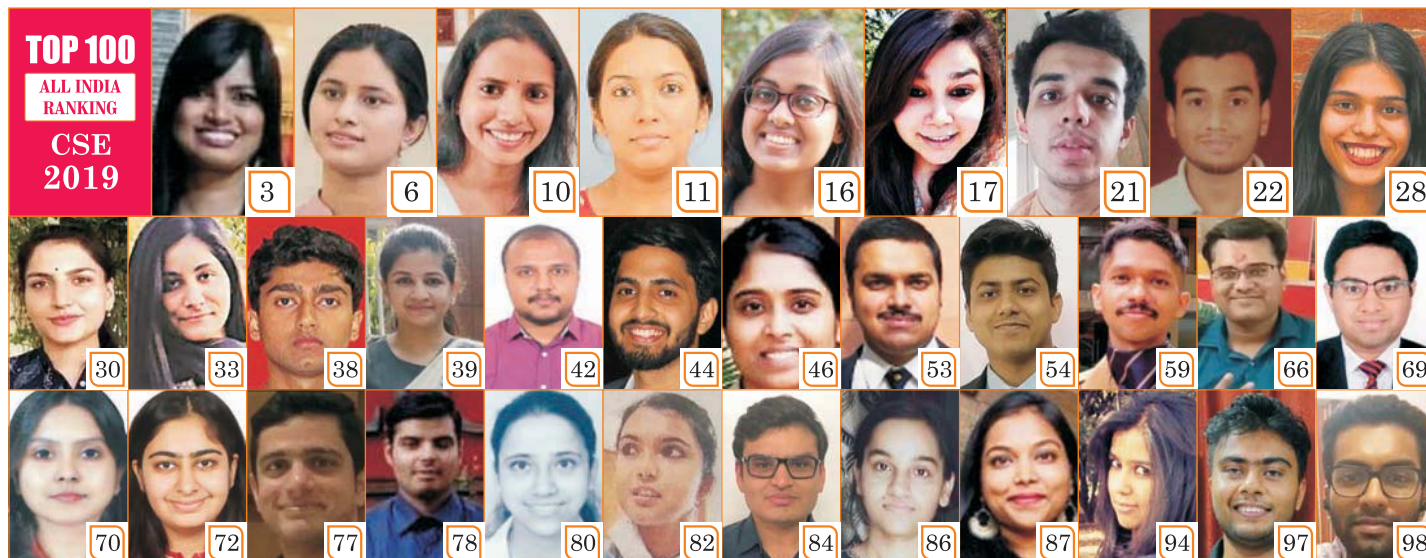
What is Genome editing?

- Genome editing or gene editing is a group of technologies that give scientists the ability to change an organism's DNA.
- These technologies allow genetic material to be added, removed, or altered at particular locations in the genome.
- Several approaches to genome editing have been developed.
 - A recent one is known as **CRISPR-Cas9**, which is short for clustered regularly interspaced short palindromic repeats and CRISPR-associated protein 9.



Asian elephant

- The Asian elephant is the largest land mammal on the Asian continent.
- **Habitat:** They inhabit dry to wet forest and grassland habitats in 13 range countries spanning South and Southeast Asia. Currently occurs in the following regions:
 - **Indian subcontinent:** India, Nepal, Bhutan and Bangladesh
 - **Continental southeast Asia:** China, Myanmar, Thailand, Cambodia, Laos, Vietnam, and Malaysia
 - **Island Asia:** Andaman Islands (India), Sri Lanka, Sumatra (Indonesia), and Borneo (Malaysia and Indonesia)
- **Conservation status:** Endangered
- **Scientific name:** *Elephas maximus indicus*
- **Height:** 6.5–11.5 feet
- **Weight:** Around 11,000 pounds
- **Length:** Around 21 feet



SUCCESS IS A PRACTICE WE DO!

