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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.

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SECTION: A

(MAINS)

CURRENT AFFAIRS

MEGATRENDS' TO AFFECT FORESTS OVER THE COMING DECADE'

CONTEXT

Researchers from academic, governmental and international organisations have identified five large-scale 'megatrends' that are likely to have a large impact on forests and forest communities over the coming decade.

⦿ BACKGROUND

- Around the world, 1.6 billion people live within 5km of a forest, and millions rely on them for their livelihoods, especially in poorer countries.
- The fifth anniversary of the signing of the Paris Agreement offers a moment to reflect on progress towards global climate goals.
- They are also home to much of the world's biodiversity and regulate key aspects of the carbon cycle.
- In short, forests are vital in global and national efforts to combat climate change and biodiversity loss and eradicate hunger and poverty.
- When it comes to protecting the world's forests, there has been little progress.

⦿ ANALYSIS

What are the identified trends?

The five megatrends revealed by the research are:

- **Forest mega-disturbances**
  - Droughts and excessive precipitation are increasing forests' susceptibility to diseases and human-induced wildfires and floods.
  - This is leading to defoliation, tree mortality and declines in forest productivity at unprecedented scales, with increasing evidence that forest disturbance can result in the emergence of diseases with the ability to spread globally.
  - **Suggestion:** Policy responses to these disturbances will require balancing a range of mitigation and adaptation efforts – whilst opportunities and challenges are likely to arise from efforts to align forest conservation and restoration with other sustainability priorities, such as poverty alleviation.
- **Changing rural demographics**
  - Increased migration to urban areas is causing an unprecedented exodus among forest-reliant communities.
  - The effects of these demographic shifts, including forest resurgence on formerly agricultural lands and participation in decision-making, are not well understood.
  - While population shift could result in opportunities for effective forest conservation, they can also lead to deforestation as greater urban demand and large industrial projects are created.
- **The rise of the middle class**
  - By 2030 the middle class in low- and middle-income countries will grow to almost 5bn people – around 50% of the global population.
  - The growth in demand that this creates will increase pressure on land and other resources.
  - Growing consumption and demand of commodities has already seen large scale corporate-led land acquisitions for industrial production of cattle, soy and palm oil in Latin America, Africa and Southeast Asia.
  - Between 2001-2015, 27% of forest disturbance was attributed to commodity-driven deforestation.
  - Further growth in demand and continuing culture of consumerism will alter local and global consumption patterns, with potentially severe effects on deforestation rates, emissions, wildlife populations, ecosystem services and rural communities.
- **Use of digital technologies**
  - Access to digital communication technology has grown exponentially in recent years, with a sevenfold increase in internet and mobile cellular use since 2000.
  - The majority of this growth has come from outside industrialised countries and is likely to have a transformational impact on the forest sector.
  - Technologies that collect and disseminate data are increasingly accurate and easy-to-use, including land mapping tools, real-time satellite data and crowd-sourced data.
  - Although they can be accessed by those involved in an illicit activity such as logging and mining, these technologies also provide opportunities.
  - Increasingly available data can benefit a wide range of forest sector stakeholders including policymakers, oversight bodies,

non-governmental actors, managers and local communities.

- New technologies are already supporting the surveillance and certification of global production networks, which is aiding regulatory control of forest-based products and people threatening forests.

- **Infrastructure development**
  - Large scale infrastructure projects such as China's Belt and Road initiative are likely to have transformational impacts on forests and rural communities.
  - To accommodate the demand for energy, natural resources and transport, many countries have planned ambitious infrastructure growth.
  - By 2050, there is expected to be at least 25 million km of new roads globally to help facilitate commodity flow between transport hubs; governments in the Amazon basin alone are developing 246 new hydroelectric dams, and illegal mining activities are expanding rapidly across the globe.
  - This can lead to forest loss, displaces people, disrupts livelihoods and provokes social conflicts as communities lose access to land and resources.

Status of forest area

- Forest ecosystems are a critical component of the world's biodiversity as many forests are more bio-diverse than other ecosystems.
- **Coverage area:** Forests cover 31 percent of the global land area. Approximately half the forest area is relatively intact, and more than one-third is primary forest (i.e. naturally regenerated forests of native species, where there are no visible indications of human activities and the ecological processes are not significantly disturbed).
- **Total area:** The total forest area is 4.06 billion hectares or approximately 5 000m2 (or 50 x 100m) per person, but forests are not equally distributed around the globe.
- More than half of the world's forests are found in only five countries (the Russian Federation, Brazil, Canada, the United States of America and China) and two-thirds (66 percent) of forests are found in ten countries.
- **Rate of deforestation:** Between 2015 and 2020, the rate of deforestation was estimated at 10 million hectares per year, down from 16 million hectares per year in the 1990s.

  The area of primary forest worldwide has decreased by over 80 million hectares since 1990.

Forest in India

- India is home to a diverse range of forests—moist and dry tropical forests, temperate and subtropical montane forests, alpine forests and scrubs forests.
- It is one of the 17 "mega-diverse" countries and is home to 8% of the world's known flora and fauna.
- Besides, Indian forests support the livelihood of nearly 275 million people, who are dependent on forests for food, fuelwood, fodder and other forest products.
- Forest cover change data from FSI between 2009 and 2017 shows an increase in the forest of 2 million hectares. Increases occurred in India's densest forests (greater than 70% canopy cover) and open forests (between 10% and 40% canopy cover), with slight decreases seen in moderately dense forests (between 40% and 70% canopy cover).
- India has made several commitments to restoring deforested and degraded landscapes including the Bonn Challenge, nationally determined contribution and several domestic targets.
  - The Government of Germany and IUCN (International Union for Conservation of Nature) launched the voluntary Bonn Challenge in 2011 with the target of restoring 150 million hectares (mha) of degraded and deforested landscapes by 2020 and 350 mha by 2030.
    - India joined the Bonn Challenge in 2015 with a pledge to restore 21 mha of degraded and deforested land.
    - This was raised to the target of 26 mha by 2030 during the United Nations Convention on Combating Desertification Conference held in Delhi in September 2019.

What about Forest species and genetic diversity?

- It is not only the trees that make a forest but the many different species of plants and animals that reside in the soil, under storey and canopy.
- Estimates of the total number of species on Earth range from 3 million to 100 million (May 2010).
- Although it is widely reported that forests harbour 80 percent of terrestrial plants and animals, such a precise estimate is unlikely to be accurate given

the changing state of knowledge of planetary biodiversity.

- While trees are the defining component of forests and their diversity can indicate overall diversity, there are many other ways to determine the biodiversity significance of forests.
- As of December 2019, a total of 20,334 tree species had been included in the IUCN Red List of Threatened Species (IUCN, 2019), of which 8,056 were assessed as globally threatened (Critically Endangered, Endangered or Vulnerable).
- More than 1,400 tree species are assessed as critically endangered and in urgent need of conservation action.

Forest species diversity: Other forest plants, animals, and fungi	
Plants	• About 391 000 species of vascular plants are known to science of which about 94 percent are flowering plants. • Of these, 21 percent are likely threatened by extinction. • Some 60 percent of the total are found in tropical forests.
Fungi	• Some 144 000 species of fungi have been named and classified so far. • However, it is estimated that the vast majority (over 93 percent) of fungal species are currently unknown to science, indicating that the total number of fungal species on Earth is somewhere between 2.2 and 3.8 million.
Invertebrate species	• Some 1.3 million species of invertebrates have been described.
	• Most are insects, and the vast majority live in forests.
Vertebrate species	• However, many more exist, with some estimates ranging from 5 million to 10 million species. • Close to 70 000 vertebrate species are known and described (IUCN). • Of these, forests provide habitats for almost 5 000 amphibian species (80 percent of all known species), close to 7 500 bird species (75 percent of all birds) and more than 3 700 different mammals (68 percent of all species)

What needs to be done?

- **Integration of knowledge for detailed understanding:** The world community needs to place a greater emphasis on the causes that affect forest livelihoods, and integrating knowledge from different regions on various time scales for a more detailed understanding.
- **Better defending of forests:** It is also vital to rethink how regulators, rural communities and civil society can better defend forests and local livelihoods using digital monitoring platforms, handheld devices, drones and other technologies.
- **Collaborative partnership:** Strengthening of existing collaborations between researchers, local communities and policymakers as well as the development of new types of partnerships with public and private stakeholders is also need of the moment.
- **Understanding the dynamics:** Understanding the larger-scale dynamics is vital to support not only the critical role of forests in meeting livelihood aspirations locally but also a range of other sustainability challenges globally.

⊙ WAY FORWARD

The findings call for an increase in case study research within these five trends, a deeper exploration of the trends over time and space, and a greater focus on the causes of social and environmental changes.

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INDIA'S OUTREACH TO WEST ASIA'

CONTEXT

Indian Army chief Manoj Mukund Naravane is on his four-day visit to Saudi Arabia and the United Arab Emirates. The visit is being seen as a testimony to New Delhi's commitment to warming ties between India and the Gulf countries.

⊙ BACKGROUND

- This visit comes on the heels of External Affairs Minister S Jaishankar's trips to Bahrain and the UAE, and upcoming trips by India's top diplomats to Qatar, Kuwait and Oman.
- This trip highlights the increasing strategic cooperation between the two sides across the Arabian Sea.
- Gen. Naravane's schedule includes stopovers in Riyadh and Abu Dhabi and giving a talk at Saudi Arabia's National Defence University.
- The visit comes as a boost to the already aggressive diplomacy New Delhi has orchestrated in West Asia (Middle East), particularly with the Gulf, over the past few years.
  - In October 2019, both India and Saudi Arabia had announced their first joint naval drills to take place in March 2020.
  - In March 2018, India and the UAE conducted their maiden naval exercise titled **'Gulf Star 1'** as an expansion of the comprehensive strategic partnership between the two countries.

⊙ ANALYSIS

What kind of defence cooperation is there between India and the Gulf?

- Defence cooperation between India and the Gulf is an avenue that has had to be built almost from scratch.
- Though, historically, India has not exactly been absent from the region's geopolitical and defence environment.
- Between 1958 and 1989, India trained **Iraqi air force cadets** in Tikrit both in operations and in tactical attack training (via deputation of Pilot Attack Instructors (PAI)) on the MiG aircraft variants, of which India still operates a significant number.
- While, of course, the India – Iraq bonhomie during the era of **Saddam Hussein** was much more aligned towards India's narrow interest yet critical requirement of oil supplies.
- Today the ideation of cooperation with the Gulf is that of economic power in Asia and a growing strategic partner in global affairs, and not just a transactional state is known to provide cheap labour and an oil market.

What is current India's defence outreach to the Gulf?

- The defence cooperation is a mesh of both the legacy issues between the sub-continent and the Gulf and new geopolitical and geoeconomics realities.
- Today, the depth of engagement is significant due to a variety of microcosms within the realities of a fast-changing global polity.
- Most of India's defence outreach to the Gulf recently has been led by the Navy, with high-level visits by the service peppered across 2017, 2018 and 2019.
- Earlier in 2015, a contingent of the Indian Air Force which included Sukhoi 30MKI fighters, C-17 and C-130J transport aircraft, IL-78 tankers and 110 personnel conducted the first staging visit at **Saudi's King Fahd airbase** in Taif while on route to the United Kingdom.
- The same year, then IAF chief Arup Raha had visited UAE and Oman and in 2016 the air forces of India and the UAE conducted bilateral exercises.
- These institutions have since developed over the years at a steady pace.

What is the significance of the Indian Army chief's visit to the Gulf?

- **Normalization of ties:** This visit aims to normalise the relations of the United Arab Emirates, Bahrain and Sudan with Israel and Iran's efforts to position itself as a key player in Western Asia. India has welcomed the normalisation of ties between Arab states, saying that such steps are in line with its efforts to support peace and development in Western Asia.
- **A new start:** Gen. Naravane's visit is significant as it is the first such visit by the chief of the Indian Army.
- **New avenues of defence cooperation:** It will open a new avenue of defence cooperation, specifically when it comes to joint exercises and training in land warfare, particularly with regard to closer cooperation on issues such as counterterrorism.

- This could now become easier and more ingrained with the **signing of the Abraham Accords** between the UAE, Bahrain and Israel and with the Saudis also acknowledging the deal, albeit in a limited manner.

Will this visit place Indian indigenous weapon systems into highlights?

- Reports around Gen. Naravane's visit already have highlighted a **potential sale of the BrahMos Missile System** that has been jointly developed by India and Russia with both Abu Dhabi and Riyadh showing interest.
- Other systems such as the in-development. **Advanced Towed Artillery Gun System (ATAGS)** and other similar projects are seen as having considerable potential as export success stories, with the Gulf as a lucrative market.
- This opening in the Gulf for defence equipment can place Indian indigenous weapon systems not only for sale but also offer joint-development schemes where the likes of Saudi and UAE can team up with Indian enterprise, both public and private sector, to develop weapons not only for consumption but for export as well.
- This can be done on the same model as India, UAE and Saudi have been working in the field of energy security.

What has led to this visit?

- It is important to examine the recent changes that have occurred that have to lead to this visit.
- The foremost being the snub given by Saudi Arabia to Pakistan recently when General Qamar Javed Bajwa accompanied by the Director-General ISI was denied an audience by Crown Prince Mohammed Bin Salaman when he rushed to Riyadh in August to control damaging Pakistan – Saudi ties.
  - These ties started deteriorating with Pakistan's refusal to join a Saudi- UAE coalition in Yemen and an upswing in their ties with Turkey and Malaysia.
- The next of course is the recent breakthrough in ties between Israel and UAE and the signs of a similar trajectory in ties with Saudi Arabia.
- Simultaneously, China is getting closer to Iran much to the discomfort of other countries in the region and even though one of the reasons for the Chinese intrusions was the apprehension in China that India was seeming to align with the US, the actions of China only accelerated a push in that direction which resulted in the recent **Exercise Malabar** and is now being reflected in this significant visit.

What should be the 'focus-areas' of the visit?

- **To shield India's interests in the post-pandemic turbulence:** There is the immediate need to shield India's interests in the post-pandemic turbulence that is enveloping the region.
- The Gulf considers cutting back on foreign labour, Delhi would want to make sure its workers in the region are insulated.
- **To focus on new avenues of economic cooperation:** India needs to focus on the new and long-term possibilities for economic cooperation with the Gulf, which is looking at a future beyond oil.
- **To broader the political narrative**: The Gulf's financial power is increasingly translating into political influence and the ability to shape the broader political narrative in the Middle East.
- **To strengthen regional initiatives on connectivity and security:** India needs to bring scale and depth to its regional initiatives on connectivity and security in the Indian Ocean. There is a growing ability of the Gulf to influence regional conflicts from Afghanistan to Lebanon and from Libya to Somalia. The Gulf today delivers economic and security assistance to friendly states, builds ports and infrastructure, acquires military bases and brokers peace between warring parties and states.
- **To pay sufficient focus to reforms:** Delhi pays insufficient attention to the significant reforms unfolding in the Gulf that seek to reduce the heavy hand of religion on social life, expand the rights of women, widen religious freedoms, promote tolerance, and develop a national identity that is not tied exclusively to religion.

Is there any other development behind the ambit of defence cooperation?

- Beyond the ambit of defence cooperation, New Delhi is also using its closeness to the Gulf block for multi-layered geopolitical reasons.
- India is using the **fissures** developed between Saudi Arabia and Pakistan to bolster its case as a long-term partner in heir apparent Mohammed bin Salman's (MbS) bid to open up the Saudi economy and society, allowing India to promote its position on issues such as Kashmir more successfully within the Muslim world.
- India hosted **MbS** in February 2019, where he received all the frills that a head of state does.
- This was a time when the Crown Prince was embroiled in the case of the murder of journalist Jamal Khashoggi due to which most Western capitals were not keen on welcoming him.
- New Delhi took this challenge as an opportunity.

Why 'West' assumes significance for India?

- Six West Asian countries - UAE, Saudi Arabia, Kuwait, Oman, Qatar and Bahrain - accounted for nearly 70% of all Indians who live abroad.
- UAE is home to the largest number of Indians, 3.4 million, which was approximately a quarter of all NRIs around the world.
- Another 2.6 million were in Saudi Arabia and Kuwait, Oman, Qatar and Bahrain were home to another 2.9 million NRIs.
- Between them, they sent home nearly half of India's total foreign remittances of US 80 billion.
- West Asia especially the Gulf is strategically most important for India's overall security spectrum including energy and Diaspora security.
- West Asia is an integral part of India's Indo-Pacific maritime domain hence mutually beneficial areas of cooperation.
- However, more significantly, India is also in a good space to cash in from the likes of Saudi and UAE getting more comfortable in taking control of their security and hedging an over-reliance on the US-provided security blanket.
  - This is highlighted by examples such as the UAE opting to go for **Chinese drones** for military use when the US refused to sell them the **MQ-9 'Reaper' drones**, showcasing that Abu Dhabi was willing to source defence requirements from others if its security needs are not met from its traditional suppliers.

Important exchanges between the top leaderships

- In August 2015, Prime Minister Modi became the first Indian Prime Minister to visit the UAE, which he visited again in 2018 and 2019.
- During his last visit, he received the Order of Zayed, the UAE's highest civil decoration, in recognition of his role in improving ties between the two countries.
- Three years prior, he received the **King Abdulaziz Sash Award of Saudi Arabia** and the **'King Hamad Order of the Renaissance'**, the third-highest civilian order of Bahrain in 2019.
- Prime Minister Modi has had a calibrated approach to the Gulf region's powers with high-profile visits to Saudi Arabia, Qatar, Oman, Iran and Bahrain, which were followed by Gulf dignitaries visit New Delhi.
- When one of the most revered leaders of the region **His Highness Sheikh Sabah Al-Ahmed Al-Jaber Al-Sabah**, the Emir of Kuwait, passed away in September, the Indian Government declared a day's state mourning throughout the country—a gesture that was much appreciated in Kuwait.

This personal touch between the top leaderships paid a rich dividend in the crisis that ensued globally after the COVID-19 disease became a pandemic.

⊙ CONCLUSION

Though energy has been the foundation of India and Gulf countries ties, there has been a remarkable shift in the relationship lately and the visit of the Chief, and focus on counter-terrorism and security is only reflective of maturing of our relationship and elevated role in this region. However, the pandemic has only worsened economic outlook, exacerbated India's problem of reverse migration and impacted Gulf sovereign wealth funds. In this climate, what India can do is focus on fast-tracking existing projects and re-engage with purpose in strategic sectors like healthcare, nuclear and space cooperation.

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INDIA, SRI LANKA, MALDIVES UP MARITIME SECURITY

CONTEXT

India, Sri Lanka and the Maldives revived their trilateral maritime security cooperation dialogue, for the first meeting of the group since 2014.

⦿ BACKGROUND

- The India–Sri Lanka–Maldives trilateral meeting saw the revival of the National Security Advisor (NSA)-level dialogue among the three countries, which began almost a decade ago in 2011.
- The meeting took place six years after the last edition in 2014 is significant.
- Both Sri Lanka and the Maldives are critical maritime neighbours to India in the Indian Ocean region and there have been continuous efforts by both India and China to win friends and favours in Colombo and Male.
- The NSA-level talks are also a demonstration of the Indian intent to push subregional diplomacy, which has been gaining traction in India's foreign policy in the last few years.
- The Indian Government has made efforts to engage in subregional diplomacy as a useful track following the near-complete halt in regional diplomacy in South Asia under the South Asian Association for Regional Cooperation (SAARC).

⦿ ANALYSIS

What does the NSA Meeting assume significance?

- The trilateral NSA-level meetings between India, Sri Lanka, and the Maldives began in 2011 and since then four meetings have been held, including the latest one, which took place in Colombo.
- The last NASA-level talk between the three nations was held in 2014 in New Delhi.
- The latest dialogue was conducted keeping in mind the COVID-19 pandemic and all delegates had to adhere to strict guidelines, including the 'Air Bubble' concept.

The previous developments

- **DOSTI (India-Maldives):** Following the first trilateral meeting, the India–Maldives 'DOSTI' joint Coast Guard exercise in 2012 added Sri Lanka and was held as a trilateral exercise.
  - ➤ India–Maldives DOSTI exercises have been going on since 1991.
  - ➤ These are aimed at strengthening capabilities of the three partners in the area of search and rescue operations, combating piracy and armed robbery, damage control, and casualty evacuation at sea.
- **SLINEX (India-Sri Lanka):** India and Sri Lanka also have held bilateral naval exercises called SLINEX since 2005.
  - ➤ The latest iteration, the eighth, was held off Trincomalee in Sri Lanka in October 2020.

- **The NSA-level meeting is significant for two reason**s:
- First, it involves both the Maldives and Sri Lanka, countries that — because of the leaders at their helm – have very different geostrategic orientations.
  - ➤ Maldives' President Ibrahim Solih has enthusiastically welcomed a greater role for India, as well as the United States, in the region.
  - ➤ However, this has not been the case so far with Sri Lanka since last year, with the Rajapaksa brothers back at the top. Even though Sri Lanka has rhetorically committed to an "India first" approach when it comes to security, the fine print indicates that Colombo will engage with other major powers – read, China for its economic development.
- Second, the meeting is important since India has been concerned over the increased aggressive behaviour by China in the Indo-Pacific region, especially this year, in the middle of the pandemic.
  - ➤ New Delhi wants all the neighbouring maritime neighbours to be on the same page on the issue of Beijing's assertive and proactive actions in the Indian Ocean region.

What are the key-advances made in the meeting?

- Intending to encourage meaningful maritime cooperation in the Indian Ocean region, India, Sri

Lanka, and the Maldives discussed several areas for possible collaboration such as:

- Maritime Domain Awareness (MDA)
- Humanitarian Assistance and Disaster Relief (HADR)
- Joint military exercises, capacity building, maritime security threats, marine pollution, and maritime underwater heritage.

- The three states agreed to further strengthen cooperation in dealing with these Maritime Security challenges, to ensure peace and security in the region for common benefit.
- The Heads of Delegations decided that they would meet periodically to maintain the momentum of the dialogue and to ensure timely execution of the decisions taken at the NSA-level meetings.
- According to the joint statement, a decision was also made to institute deputy NSA-level working group meetings biannually for cooperation at the operational level.

Who represented the trilateral?

- For the Colombo trilateral, the Indian side was represented by National Security Advisor Ajit Doval
- The Maldives sent its Defence Minister Mariya Didi, and Sri Lanka was represented by Defence Secretary Maj. Gen. (Retd) Kamal Gunaratne.
- Mauritius and Seychelles were also present virtually at the level of senior officials.

Why led India to drive its approach to security cooperation in the neighbourhood?

A couple of factors seem to drive Delhi's sub-regional approach to security cooperation in the neighbourhood.

- **Interlinked transnational security challenges:** The recognition that sub-regional security dynamics are interconnected and there is a need to view it with a holistic approach beyond bilateralism.
- **Leading security role:** The desire to play a leading security role in the neighbourhood. A geostrategic subtext driving India's calculations is if Delhi does not play the role, it might open room for rival powers to step in its backyard. For the idea of sub-regional security cooperation to be effective, Delhi would need to consider a couple of factors.

What are the challenges for India in maritime security?

- **Growing Chinese activism:** While broader maritime security, anti-piracy, and HADR are important components of growing India–Sri Lanka–Maldives strategic narrative, the real worry for India is growing Chinese activism in the Indian Ocean region.
  - China's efforts at cultivating the Indian Ocean littoral states have been a concern for New Delhi.
- **Capacity gaps:** While India is a resident Indian Ocean power and has its own advantages, there are capacity gaps in India's ability to play a sustained or dominant role.
- **Capital intensive and time-consuming projects:** While India is stepping up its efforts in naval modernization, these are capital intensive and time-consuming projects. The small budget allocations for the Indian Navy are not helpful either.
- **Foreign policy behaviour:** An issue that has and will continue to pose a challenge in forging sub-regional security cooperation for India relates to the foreign-policy behaviour of smaller neighbours. For instance, the progress of the NSA-level trilateral meeting was affected when Delhi's ties with Male deteriorated under Maldivian President Abdulla Yameen.

What are the recent developments made by India?

- **Partnership agreements:** India has entered into a series of partnerships with like-minded countries in the Indo-Pacific, such as Australia, Japan, and the United States, to offset the growing Chinese influence as well as to enhance India's own capabilities.
  - The logistic agreements that India has signed with several countries – including the United States, Australia, France, South Korea, Singapore, and Japan.
  - They are a demonstration of the Indian intent to enhance the geographical reach of the Indian Navy, and also to strengthen the combined capability mix that is available to deal with China's aggressive manoeuvres in the Indian Ocean region.
- **Focus on regional groupings:** Meanwhile, even as India pursues a neighbourhood first approach, it has also acknowledged the limitations of regional groupings such as the South Asian Association for Regional Cooperation (SAARC), which came to a grinding halt a few years ago.
  - India had reached out to the SAARC nations in recent years, but the bonhomie did not last long.
  - Therefore, India has energized other regional groupings such as BIMSTEC and subregional arrangements such as the BBIN and the India–Sri Lanka–Maldives trilateral.
- While the subregional initiatives have primarily focused on connectivity and similar issues, India

is also exploring the possibility of engaging in subregional security cooperation.

What steps should India take?

- **Maintaining good bilateral relations:** Sub-regional cooperation cannot be insulated from bilateral political relations and, hence, maintaining good bilateral relations with individual countries and responding to the growing aspirations of smaller neighbours would be crucial.
- **Sensitivity towards small neighbours**: Showing sensitivity and accommodating the smaller neighbours' concerns would further strengthen mutual trust, an issue that is inherent in the relations between big and small neighbours.
- **Clarity on boundary issues:** Drawing a clear boundary of the subregion will continue to remain a challenge as cooperation will not always be driven by the proximity factor but also by the nature of the issue itself.
  - However, some clarity on the boundary issue may help in better framing the objectives of sub-regional security cooperation and avoid overlapping of membership or duplication of activities.

⊙ CONCLUSION

In the coming times, the nature and framework of bilateral political relations are going to have an impact on sub-regional initiatives, especially in the maritime domain. The case of the NSA-level trilateral maritime dialogue between India, Sri Lanka, and the Maldives is a case in point. The recent meet indicates that the sub-regional approach is here to stay and its importance is likely to grow in the coming years

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5G COUNTDOWN

CONTEXT

Mukesh Ambani led Reliance Jio has declared that they will launch 5G in the 2nd half of 2021.

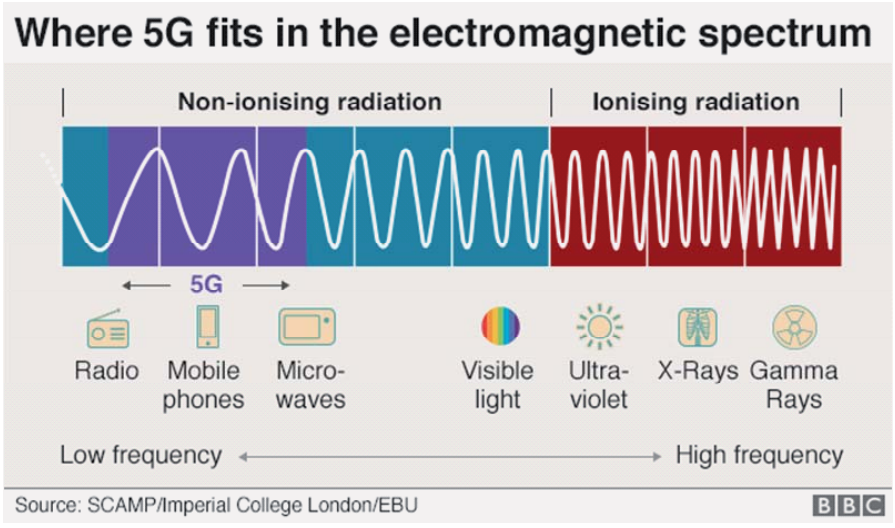
⦿ BACKGROUND

- Previously, Jio had revealed it had set up core architecture and was ready to switch to 5G as soon as the spectrum auction came around.
- Mukesh Ambani had announced in July that Jio would start testing its homegrown 5G solution as soon as the spectrum was available. The announcement was made during RIL's 43rd Annual General Meeting.
- At the Qualcomm 5G Summit in October, Jio had announced the development of its 5G Radio Access Network (RAN) designed to test 5G network at scale.
- Jio has been working with companies like Samsung and Qualcomm to bring 5G to India.

⦿ ANALYSIS

What is 5G?

- 5G is the 5th generation of mobile networks, a significant evolution of today's 4G LTE networks.
- It is the next-generation cellular technology that will provide faster and more reliable communication with ultra-low latency.
- Even after the entry of 5G into the Indian networks, the earlier generation mobile technologies (2G, 3G and 4G) will continue to remain in use and that it may take 10 or more years to phase them out.
- 5G uses radio waves or radio frequency (RF) energy to transmit and receive voice and data connecting our communities



What are the potential applications of 5G?

Sustainable pricing of spectrum, stable policy and regulatory landscape, and innovative use cases are estimated to be key enablers accelerating the growth of the 5G market in India. Agriculture, automotive, manufacturing, healthcare, energy & utilities, and media & entertainment are likely to be the potential end-user industries of 5G.

- **Telecom sector:** 5G will positively impact India's telecom market, the second largest in the world and "still growing", as increased data consumption and heightened adoption of technology due to the pandemic has prepared the market for the advent of next-generation technology.
- **Agriculture**: It is expected to revolutionize the agriculture industry through high-speed data transfer in agricultural drone, smart irrigation, precision farming, and monitoring of soil, crop and livestock.
- **Automotive industry:** In the automotive industry, 5G is expected to fast track the implementation of connected cars, V2X (vehicle to everything), autonomous driving, and smart transportation system.
- **Manufacturing industry:** The manufacturing industry is predicted to leverage 5G in connected and smart factories, synchronized planning, smart supply-chain network, and smart logistic operations.
- **Healthcare industry:** Furthermore, 5G is likely to digitally transform the healthcare industry through the application of **internet of medical things (IoMT),** connected healthcare, patient data management and online consultation.
- **Application in smart cities:** 5G is expected to find extensive use in smart cities. The major smart city applications of 5G are anticipated to be smart utility management systems, smart grids and metering systems, smart traffic management systems, smart traffic lights, video surveillance and analytics, and waste management.

- **Supporting applications and services:** It is expected to form the backbone of emerging technologies such as the Internet of Things (IoT) and machine to machine communications, thereby supporting a much larger range of applications and services, including driverless vehicles, telesurgery and real-time data analytics.
- **Government:** This revolution will also provide an opportunity for the government to improve it's connected with the citizens. Digitalisation could help improve the delivery of government services to citizens and also lower transaction costs for citizens.

Why does India need 5G?

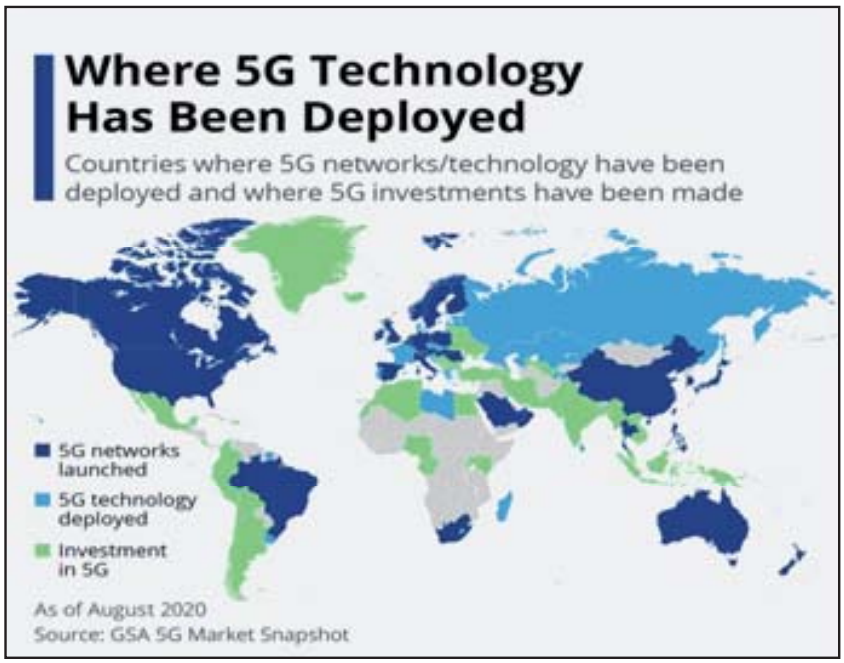
- **Internet speed:** The quick adoption of 5G technology, which has been in the works for some time now, can facilitate a quick ramp-up in internet speeds in this country. 5G has a high data speed, which improves mobility and user experience.
- **Creating adequate infrastructure:** India has been the largest consumer of data in the world. The country accounted for the consumption of 11 GB data per month per user, on an average. The existing broadband technology falls short to meet the soaring demand owing to lack of adequate infrastructure.
- **Filling required gaps:** 5G has enormous potential to accomplish the various gaps of the existing 4G LTE technology like low mobility speed, high latency and capital intensive deployment.
- **Smarter, faster and efficient infrastructure:** This new technology backbone is smarter, more efficient and up to 100 times faster than the 2G, 3G and 4G networks currently in use in India and can open up the economic potential of an unimaginable magnitude.
- **Transformation of vital sectors:** It can exponentially transform sectors such as communications, data management, analytics, fintech, healthcare, autonomous vehicles and entertainment facilitate smart cities, smart homes, and the IoT.

What are the fundamental issues in rolling out 5G networks?

- **Spectrum**: In India, 5G spectrum is yet to be allocated. This means full-fledged trials are still pending which is needed for telecom operators to test their technology.
  - **Too expensive affair:** The 5G spectrum auction has been delayed in India is because it is too expensive for telecom companies.
  - **Findings space:** One other challenge when deploying 5G is the acquisition of sites.
- **Fiberization:** Another major challenge that has to be tackled is the paucity of fibre optic links. In India, only about 25-30 percent of telecom towers are connected by fibre links; the rest are connected by radio waves.
  - Universal adoption of 5G will require at least 50-60 percent of towers to be connected by fibre – ideally, before the launch of the new technology. In the US and China, about 80 percent of all telecom towers have fibre links.
- Other challenges are:
  - Right of Way(RoW) and lack of uniform policy framework
  - Limited giga-backhauling to meet future requirements
  - Industry crippling under margin pressure
  - Network modernisation and densification will be complex
  - Strengthening the security apparatus with evolving technologies

Which countries have already launched 5G services?

- Globally, 5G network deployment is rapidly moving from trials to early commercialisation.
- In April 2019, South Korea and the U.S. became the first countries to commercially launch 5G services.



- China too has handed out commercial 5G licences to its major carriers earlier than expected.
- Other countries include Japan, Australia, United Kingdom, Qatar, Kuwait, the United Arab Emirates and others.

⊙ CONCLUSION

With a confluence of technologies (IoT, big data, edge computing, AI, etc.) maturing together, 5G is set to be a game-changer for the telecom industry and is expected to yield enormous economic opportunities. The augmentation of enterprise 5G will impact almost all major sectors, with the potential to unlock USD4.8 trillion globally. To make 5G a reality in India, government and industry collaboration with 5G network providers is needed to achieve long-term objectives.

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SPACE SECURITY

CONTEXT

- **While the terrestrial, maritime and aerial warfare are much talked about, it is outer space which is the new arena for competition and rivalry. It is important to focus on space security.**
- **In this regard, the British's recently proposed policy emphasizes a bottom-up approach and stresses trust-building. It's a critical first step.**

⦿ BACKGROUND

- From Sputnik I to SpaceX Falcon, space as a frontier has come a long way.
- Until recent past, space was seen as an 'exclusive playground' of the superpowers.
- However, with growth in the number of spacefaring nations, continuous advancements in technological and operational capabilities, and the potential for space mining, the space domain is becoming more complex, congested, competitive and contested.
- More the players on this new playground, greater the competition for resources.
- Hence there is the greater need for common objectives, fair rules of the road, and shared decision-making processes.
- Therefore, it is desirable that the competitive space environment becomes simultaneously more collaborative.
- Now, the world needs new rules of the road.

⦿ ANALYSIS

What are the current space regulations?

- Space law emerged soon after Sputnik 1 was launched into outer space in 1957.
- Several legall binding international instruments (treaties) governing the use of outer space for peaceful purposes have been adopted within the framework of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS), with the 1967 Outer Space Treaty (OST) at its core.

- **UNCOPUOS (1958):**
  - The UNCOPUOS was established in 1958 as an ad hoc committee of the UN (later made permanent in 1959) with UN Office for Outer Space Affairs (UNOOSA) as its secretariat.
  - UNCOPUOS oversees the implementation of five UN treaties related to the outer space activities, namely,
    - Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of 1967 (Outer Space Treaty)
    - Agreement on the Rescue of Astronauts
    - the Return of Astronauts and the Return of Objects Launched into Outer Space of 1968 (Rescue Agreement),
    - Convention on International Liability for Damage Caused by Space Objects of 1972 (Liability Convention),
    - Convention on Registration of Objects Launched into Outer Space of 1976 (Registration Convention)
    - the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies of 1979 (Moon Treaty)
  - It also oversees other related international agreements like the
    - Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space, and Under Water (NTB) of 1963
    - the Brussels Convention Relating to the Distribution of Programme–Carrying Signals Transmitted by Satellite (BRS) of 1979

- **Outer Space Treaty**
- The OST contains the basic rules that define the behaviour of States in conducting activities in outer space, and has resulted in more than sixty years of peaceful cooperation in space that benefits humankind as a whole.
- The Treaty declares outer space **"the province of mankind".**
- This means that its exploration and use shall benefit all countries, be without discrimination, and ensure free access to planets and other celestial bodies.

What is the present scenario of space security?

- Space security issues have potentially serious consequences. The consequences of either a deliberate or even an accidental conflict in space are too horrible to contemplate.
- A day without the utility provided by outer space is difficult to even conceive and yet the actions

of states might lead the world in that direction sooner than later.

- Unless states take measures to restrain some kinds of activities in space, access to space will not be safe, secure, or guaranteed.
- Because of the highly competitive and contested nature of major power relations today, even peaceful applications and technological developments such as On-Orbit Satellite Servicing or technologies to tackle space debris are viewed with much suspicion.
- There are also more specific space security threats – the return of anti-satellite (ASAT) testing, and cyber and electronic warfare in space, for example.
- Any satellite service disruption or damage will have a wide-ranging impact, one that cannot be contained to the security or economic sectors alone, and one that cannot be limited geographically either given the significant global dependence on space.
- Space is truly a global commons.

What are the major threats to the space?

Space security threats are growing. The major threats to the space are as follow:

- increasing cyber threats to space assets (through hacking and other satellite interference)
- heightened collision probability due to congestion
- proliferation of space debris
- entry of new players merely to ensure deterrence
- visible early trends of weaponization of space
- Space is becoming more accessible
- threat of overwhelming radiofrequency waves spectrum by large satellite constellations

What are the recent efforts made by the countries?

- There have been recent efforts including the:
  - **2010:** the 2010 EU-initiated International Code of Conduct for Outer Space Activities (ICoC)
  - **2013:** the U.N. Group of Governmental Experts (GGE) on transparency and confidence building measures (TCBMs)
  - **2014:** Russia-China sponsored draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT),
  - **2018-19:** The GGE on further practical measures for the prevention of an arms race in outer space (PAROS)

  None of these have led to a favorable conclusion.

What is the UK's proposal on Space Security?

- The United Kingdom has made a recent proposal- **"Reducing Space Threats through Norms, Rules and Principles of Responsible Behaviors**".
- It is aimed at looking at problems in space through a bottom-up approach. The proposal, in one of its operational clauses:

  encourages Member States to study existing and potential threats and security risks to space systems, including those arising from actions, activities or systems in outer space or on Earth, characterize actions and activities that could be considered responsible, irresponsible or threatening and their potential impact on international security, and share their ideas on the further development and implementation of norms, rules and principles of responsible behaviors and on the reduction of the risks of misunderstanding and miscalculations with respect to outer space.

- **Behaviour-based approach:** One of the key features of the U.K. proposal is to focus on a behavior-based approach, since debates focused on an object-based approach have not gone very far.
- **Room for greater flexibility:** The U.K. proposal is not prescriptive in suggesting a particular type of outcome or a particular format. Thus, this proposal provides room for greater flexibility and certain amount of maneuvering among member states as they debate the threats and challenges and possible ways forward.

Why outer space matters to humankind?

- **Answering the fundamental questions:** Human space exploration helps to address fundamental questions about our place in the Universe and the history of our solar system.
- **Peaceful connection:** Through addressing the challenges related to human space exploration, countries expand technology, create new industries, and help to foster a peaceful connection with other nations.
- **Understanding Earth**: Experiments performed in space help us understand health problems on Earth.
- **Improving day-to-day lives:** Space technologies improve products and services used every day such as weather forecasts, and communications worldwide.
- **Enhancing safety:** Satellites data are used to predict natural disasters and to support emergency relief efforts.

- **Conservation:** Satellites provide data on climate change, measure pollution, and help protect the Earth.

What are the challenges in development of an outer space regime?

- **Lack of consensus:** The biggest challenge facing the development of an outer space regime is a lack of consensus among major powers.
- **Political impediments:** These are essentially political impediments and therefore that much harder to overcome than practical issues.
- **Lack of trust and confidence:** Major power relations are characterized by a serious lack of trust and confidence in each other.

What other measures are required?

- **Mutual benefits and sustainability:** There are three measures required to ensure mutually beneficial gains, and ensure sustainability of space.
  - a constructive and pragmatic approach
  - universal and inclusive forum
  - a transparent process
- **Common understanding of governance:** Countries must reach to a common understanding of basic building blocks of a governance regime such as general principles of good behaviour, effective measures to improve safety, security and sustainability of space activities and implementation of transparency and confidence building measures (TCBMs).

⊙ CONCLUSION

Given the current political impediments, states need to invest a great deal in developing mutual interest. In this regard, the bottom-up approach emphasised in the British proposal, letting member states to identify threats and challenges from their national security perspectives is a great start and should be welcomed.

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GENOME EDITING AND ETHICAL CONCERNS

CONTEXT

Gene editing is a rapidly developing area of biotechnology, it allow the precisely change the nucleotide sequence of the genome of living cells. However, development of ethical and regulatory frameworks that ensure their safe and effective use is an increasingly important consideration.

⦿ BACKGROUND

- The label 'genome editing technologies' commonly refers to technologies that allow scientists to make changes in the genetic sequences of organisms.
- As momentum builds around genome editing technologies, a substantial debate has developed amongst scholars from a wide range of disciplines, national academies, ethics bodies, members of the public, learned societies, and patients.
- This debate concerns the **ethical acceptability** of its human applications, among others, and the mechanisms of governance that would be needed to regulate these applications.

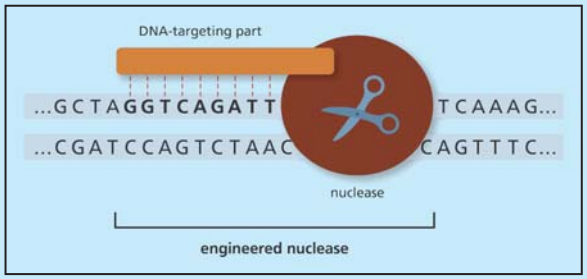
⦿ ANALYSIS

What is Genome editing?

- Genome editing is a technique used to precisely and efficiently modify DNA within a cell leading to changes in physical traits, like eye color, and disease risk.
- The technique involves making cuts at specific **DNA sequences** with enzymes known as 'engineered nucleases'.
- The technology can be used to add, remove, or even alter DNA in the genome.
- By editing the genome, the characteristics of a cell or an organism can be changed easily.

How is it done?

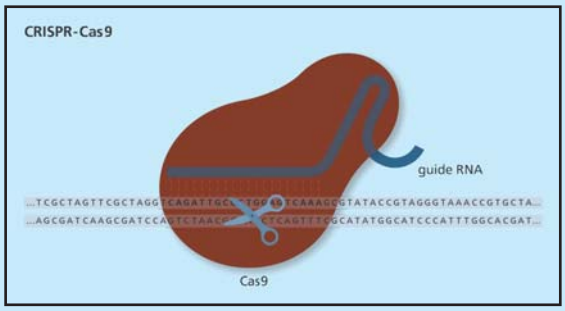
- Genome editing uses a type of enzyme called an **'engineered nuclease'** which cuts the genome in a specific place.
- Engineered nucleases are made up of two parts:
  - **Nuclease part:** A nuclease part that cuts the DNA.
  - **DNA-targeting part:** A DNA-targeting part that is designed to guide the nuclease to a specific sequence of DNA.
- After cutting the DNA in a specific place, the cell will naturally repair the cut.
- Scientists can manipulate this repair process to make changes (or 'edits') to the DNA in that location in the genome.



Which genome editing technologies are currently in use?

- Current genome editing technologies include **zinc-finger nucleases (ZFNs), transcription activator-like effector-based nucleases (TALENs)** and **clustered regularly interspaced short palindromic repeats (CRISPR)**, with **CRISPR-associated nucleases (Cas).**
- CRISPR-based genome editing is considered more precise (it is possible to target specific sequences of DNA), more efficient (it has relatively few off-target effects) and cheaper to use than other genome editing technologies.

CRISPR-Cas9



- CRISPR-Cas9 is the most common, cheap and efficient system used for genome editing.
- CRISPR stands for 'clustered regularly interspaced short palindromic repeats'.
- CRISPR is the DNA-targeting part of the system which consists of an RNA molecule, or 'guide', designed to bind to specific DNA bases through complementary base-pairing.

- Cas9 stands for CRISPR-associated protein 9, and is the nuclease part that cuts the DNA.
- The CRISPR-Cas9 system was originally discovered in bacteria that use this system to destroy invading viruses.

What are its major applications?

- **Investigation of disease**
  - Scientists use genome editing to investigate different diseases that affect humans.
  - They edit the genomes of animals, like mice and zebrafish, because animals have many of the same genes as humans.
  - For example, mice and humans share about 85 percent of their genes.
  - By changing a single gene or multiple genes in a mouse, scientists can observe how these changes affect the mouse's health and predict how similar changes in human genomes might affect human health.
- **Treatment of Disease**
  - Scientists are developing gene therapies - treatments involving genome editing - to prevent and treat diseases in humans.
  - Genome editing tools have the potential to help treat diseases with a genomic basis, like cystic fibrosis and diabetes.
  - There are two different categories of gene therapies: germline therapy and somatic therapy.
  - Germline therapies change DNA in reproductive cells (like sperm and eggs). Changes to the DNA of reproductive cells are passed down from generation to generation.
  - Somatic therapies, on the other hand, target non-reproductive cells, and changes made in these cells affect only the person who receives the gene therapy.

How countries across the world are progressing towards genome editing?

- Countries across the world, except for the European Union, are relaxing biosafety norms for using gene editing for knock-out mutations and for creating more desirable allelic forms of a vital gene.

  An example of gene editing in plants is knocking off **wheat genes** that cause high susceptibility to the powdery mildew disease.
- The US and Europe are still at the forefront in generating knowledge, but others are catching up by developing competency in new areas of R&D.
- Chinese laboratories have excelled in genomics research and now, in plant genome editing.
- In comparison, in India, the country seems to be in no hurry to take vital decisions on the use of new technologies.
- Promising regions & countries for genome editing:
  - North America (United States)
  - Europe (Germany, France, UK)
  - Asia-Pacific (China, Japan, India)
  - Latin America (Brazil)
  - The Middle East & Africa

What are the ethical concerns for using genome editing?

- **Safety concerns:** Due to the possibility of off-target effects i.e., edits in the wrong place and mosaicism i.e., when some cells carry the edit but others do not, safety is of primary concern.
- **Use of embryos:** Since human embryos are humans in the earliest developmental stage, their destruction raises ethical questions.
- **Risk to life and health:** Egg donation specifically for the purpose of research raises additional concerns. Oocyte procurement is a physically invasive procedure, which involves ovarian suppression, followed by ovarian stimulation and a surgical procedure of oocyte retrieval. The whole process involves not only many inconveniences, but also risks to the physical health or even the life of the woman involved.
- **No informed consent**: In gene editing, it is impossible to obtain informed consent for germline therapy because the patients affected by the edits are the embryo and future generations.
- **Not accessible to all:** There is also a concern that genome editing will only be accessible to the wealthy. This will increase existing disparities in access to health care and other interventions.
- **Inadequate guidelines:** Current national and international regulations provide inadequate guidance and oversight for these applications. As such, they do not foster public trust in the safety of CRISPR-edited organisms or the regulatory agencies charged with monitoring them.
- **National and international security:** Recent advancements in gene editing also have serious implications for national and international security. CRISPR/Cas9 can modify pathogens to increase their virulence, expand their host range, increase their transmissibility, and enhance natural resistances to therapeutic interventions.

The ethical questions

- How can "good" and "bad" uses of gene therapy be distinguished?
- Who decides which traits are normal and which constitute a disability or disorder?
- Will the high costs of gene therapy make it available only to the wealthy?
- Could the widespread use of gene therapy make society less accepting of people who are different?
- Should people be allowed to use gene therapy to enhance basic human traits such as height, intelligence, or athletic ability?
- What if scientists used these technologies to change the genetic material of human embryos — thereby permanently changing the human gene pool?

⊙ CONCLUSION

Genome editing technologies hold potential for many sectors of the Indian economy, where agriculture assumes prominence in the mostly agrarian society. However, ethical concerns bring into sharp focus the possible pitfalls of gene editing. With effective policy formulation and strict regulation, things can be improved. Countries across the world, need to develop a uniform format to register all human gene editing experiments in their individual countries.

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MADHYA PRADESH'S GWALIOR, ORCHHA ON UNESCO WORLD HERITAGE CITIES LIST

⊙ CONTEXT: **Gwalior and Orchha in Madhya Pradesh have been included in the list of UNESCO's world heritage cities under its urban landscape city programme.**

⊙ ABOUT:

- **Gwalior**
  - Gwalior was established in the 9th century and ruled by **Gurjar Pratihar Rajvansh, Tomar, Baghel Kachvaho and Scindias.**
  - The memorabilia left by them are found in abundance in memorials, forts and palaces in the area.
  - Gwalior is known for its palaces and temples, including the intricately carved Sas Bahu Ka Mandir temple.
  - The Gwalior Fort occupies a sandstone plateau overlooking the city and is accessed via a winding road lined with sacred Jain statues.
  - Within the forts, high walls are the **15th-century Gujari Mahal Palace**, now an archaeological museum.
- **Orchha**
  - Orchha is popular for its temples and palaces and was the capital of the **Bundela kingdom** in the 16th century.
  - The famous spots in the town are Raj Mahal, Jehangir Mahal, Ramraja Temple, Rai Praveen Mahal, and Laxminarayan Mandir.
  - After inclusion in the World Heritage City list, chemical treatment of historic spots like Mansingh Palace, Gujri Mahal and Sahastrabahu Temple will be done so that art inscribed on them will become more visible.

'Historic Urban Landscape' based planning by UNESCO

- UNESCO defines HUL as an integrated approach towards managing heritage resources found within dynamic and evolving environments.
- HUL acknowledges the interconnections within a city, which occur between the built and natural environments, the tangible and intangible values, as well as within the cultural and social practices of a community.
- The approach considers these factors as key pillars towards sustainable urban heritage management and the development of the city.

Which Indian cities are under HUL?

- Gwalior and Orchha are among the few cities of India selected for the ambitious project.
- Before this, Varanasi, Ajmer-Pushkar and Hyderabad were included among the pilot cities for HUL recommendation based planning in the year 2015.

US DESIGNATES PAKISTAN, CHINA AS COUNTRIES OF PARTICULAR CONCERN FOR VIOLATION OF RELIGIOUS FREEDOM

⊙ CONTEXT: **In a latest development, the US has designated Pakistan and China among eight other countries that are of particular concern for violation of religious freedom.**

◉ ABOUT:

- United States have a responsibility to publish an annual report on International Religious Freedom.
- Religious freedom is a universally acknowledged right enshrined in numerous international covenants and declarations such as the
  - United Nations Universal Declaration of Human Rights
  - the United Nations International Covenant on Civil and Political Rights
  - the Helsinki Accords, and others
- The United States recognizes religious freedom as an inalienable right and is therefore committed to its preservation and advancement for all.
- The first step in advancing international religious freedom is to shine a light on its abuse, including the persecution and discrimination of religious groups.

The categories

- "Country of Particular Concern" is a designation by the Secretary of State of a nation engaged in severe violations of religious freedom under the International Religious Freedom Act (IRFA) of 1998.
- "Special Watch List" country is one that is deemed not to meet all of the CPC criteria but engages in or tolerates severe violations of religious freedom.

Key-highlights

- **Country of Particular Concern:** Pakistan and China along with Myanmar, Eritrea, Iran, Nigeria, North Korea, Saudi Arabia, Tajikistan and Turkmenistan were placed in the list for engaging in or tolerating "systematic, ongoing, egregious violations of religious freedom".
- **Special Watch List:** The State Department placed the Comoros, Cuba, Nicaragua and Russia on a Special Watch List (SWL) for governments that have engaged in or tolerated "severe violations of religious freedom".
- **Entities of Particular Concern:** The US also designated al-Shabaab, al-Qaida, Boko Haram, Hayat Tahrir al-Sham, the Houthis, ISIS, ISIS-Greater Sahara, ISIS-West Africa, Jamaat Nasr al-Islam wal Muslimin and the Taliban as 'Entities of Particular Concern'.

NEW PARLIAMENT BUILDING

◉ CONTEXT: **Prime Minister Narendra Modi laid the foundation stone of the new Parliament building in New Delhi.**

◉ ABOUT:

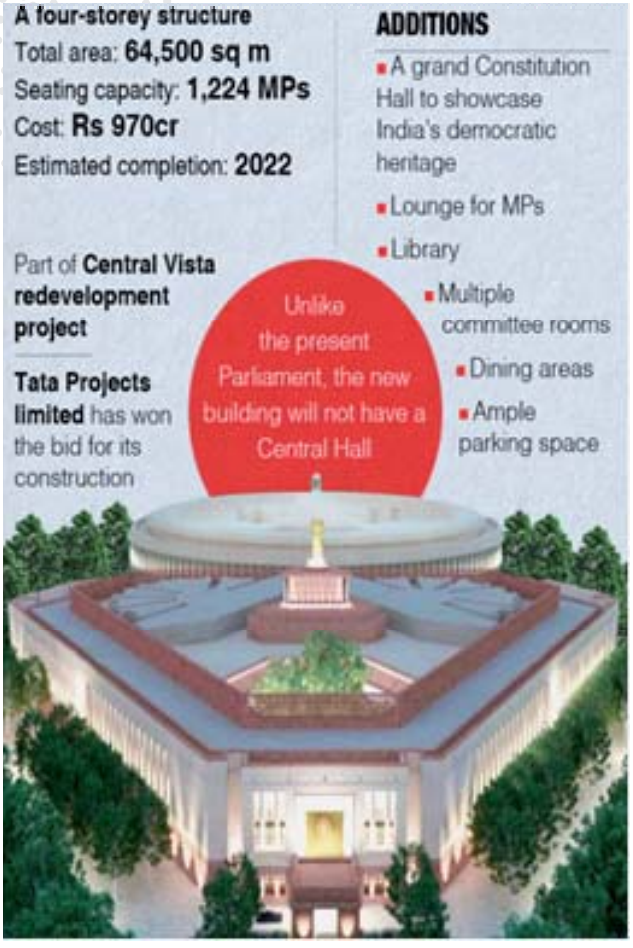
- **Location:** To be built over 64,500 sq m, it will be located a stone's throw from Rashtrapati Bhavan, the official residence of the President of India.
- **Design and structure:** The four-storey building will be triangular and its interiors will have three national symbols - the lotus, the peacock and the banyan tree - as its themes.
- **Estimated cost:** The parliament building alone will cost an estimated ₹ 971 crore.
- **Duration:** The building is expected to be ready before India's 75th Independence Day (in 2022). However, construction cannot yet begin as a legal challenge is pending in the Supreme Court.
- The new parliament building will be the highlight of the ambitious ₹ 20,000 crore Central Vista project that PM Modi said will become "a symbol of a new and self-reliant India".

Central Vista

- Delhi's central vista, home to the grand complex of government buildings, is one of the most recognisable sites in India.
- The long and grassy avenue sweeps down from the India Gate war memorial to the Rashtrapati Bhavan, or president's residence, with the circular Parliament House building in between.
- It was designed by British architects Lutyens and Herbert Baker following the 1911 decision to move the capital of the British Raj from Calcutta to Delhi.
- The geometric design, with wide avenues and sprawling lawns, was modelled on European capitals such as Paris but was also infused with Indian influences from the architecture of Hindu temples to the red-stoned grandeur of Mughal forts.
- The vista remains the only area in India designated grade 1 heritage status.

Important features of the building

- The national emblem will crown the new parliament, the ceiling of which will have fresco paintings (similar to those in Rashtrapati Bhawan) and carpets with traditional designs.
- Interior walls will have shlokas inscribed - to retain some of the characteristics of the existing parliament.
- Dholpur stone will be the primary construction material (as it was with the current building) and red granite may replace red sandstone in some interior sections. Special care will be taken during construction to ensure minimal disturbance and environmental safeguards.
- **Seating capacity:** The new Parliament House will have a seating arrangement of 888 members in the Lok Sabha. At present, India has 543 Lok Sabha seats.
- Similarly, 384 members will be able to sit in the Rajya Sabha of the new Parliament House, which currently has 245 seats.
- When a joint meeting of the two houses is convened at the new Parliament House, the hall earmarked for it will have a seating arrangement of 1,272 members. At present, the joint meeting of the two Houses is held at the Centre Hall with only 430 seats.
- The new Lok Sabha and Rajya Sabha halls will have increased seating capacities (888 and 384 seats, respectively) in anticipation of an expanded Parliament; a 25-year-old freeze on increasing state-wise distribution of seats ends in 2026.



- **Atmanirbhar Parliament:** The new Parliament building will be an intrinsic part of the vision of 'Atmanirbhar Bharat' as artisans and sculptors from all over the country would contribute to and showcase India's cultural diversity in the new building.
- **Earthquake safety:** The new Parliament building will also be able to withstand earthquakes.
- The current Parliament building
- The present Parliament House was inaugurated on **January 18, 1927**. Its architectural work was entrusted to **Sir Herbert Baker**.
- The giant circular building with its 144 sandstone columns was designed by Sir Edward Lutyens, who also designed the heart of Delhi – from the seat of the government in the North Block to the iconic Connaught Place.
- Sir Herbert Baker wanted the Parliament House to be triangle-shaped. A central hall should be built in between.
- But then British architect Sir Edwin Lutyens opposed it. He had suggested shaping it round in his proposal. Ignoring Herbert Baker's suggestion, the British had accepted Edwin Lutyens' proposal.
- The existing Parliament building will be conserved as an archaeological asset of the nation.

UN COMMISSION RECLASSIFIES CANNABIS, NO LONGER CONSIDERED RISKY NARCOTIC

⊙ CONTEXT:

- **The UN Commission on Narcotic Drugs (CND) took several decisions, leading to changes in the way cannabis is internationally regulated, including its reclassification out of the most dangerous category of drugs. Even India voted for its re-classification.**
- **It is now being presumed now that this will lead to changes in the way cannabis is regulated internationally, and in India.**

⊙ ABOUT:

What is Cannabis?

- Cannabis (often called marijuana) refers to a group of three plants with psychoactive properties, known as *Cannabis sativa*, *Cannabis indica*, and *Cannabis ruderalis*.
- Cannabis comes from the cannabis plant.
- It contains the active ingredient **delta-9 TetraHydroCannabinol (THC)**, which affects brain function.
- The flowers and leaves of the cannabis plant are dried, then smoked or eaten for the psychoactive effects of THC, which can alter perception and mood. The dried flowers (heads) of the cannabis plant have a high THC concentration.
- Cannabis is a depressant drug that reduces brain activity.

What are the effects?

- **Effects During use**
- The effects felt during use can be both desired and undesired.
- For most people who use cannabis, the desired effect is a feeling of well-being.
- People who use cannabis often talk and laugh a lot and experience an altered perception of time.
- Increased appetite, dry mouth and bloodshot eyes are a few of the common and recognisable effects of using cannabis.

- **Harmful effects**, even a small amount of THC can cause:
  - poor concentration and problem-solving
  - short-term memory loss
  - slower reaction times
  - increases in heart rate, respiratory rate and blood pressure
  - anxiety and paranoia

The UN convention

- India is one of 53 members of the **UN Commission on Narcotics Drugs.**
- Twenty-seven of these countries, including the US and many European nations, voted to remove cannabis from **Schedule IV of the 1961 Single Convention on Narcotic Drugs**, where it is listed alongside opioids like heroin, while 25 countries (including Pakistan and China) voted to retain it, and one member abstained.
- Cannabis was a part of both Schedule I and IV of the UN's Single Convention on Narcotic Drugs — and while drugs in Schedule I can be used for medicinal purposes with state consent, drugs in Schedule IV are strictly controlled and their usage is a criminal offence.

What does it mean for India?

- According to the 1961 Single Convention on Narcotics, marijuana was controlled.
- Interestingly, the signatory nations were supposed to criminalise "cultivation, production, manufacture, extraction, preparation, possession, offering, offering for sale, distribution, purchase, sale, delivery on any terms whatsoever, brokerage, dispatch, dispatch in transit, transport, importation and exportation of drugs."
- The NDPS (Narcotic Drugs and Psychotropic Substances) Act, 1985, was passed by the Rajiv Gandhi government with penal provisions in case cannabis was found in one's possession, sold or if one grew the plant.
- **Purview:** Under its purview, a wide range of drugs and psychotropic substances, including cannabis, ganja, heroin and opium, are considered illegal.
  - The law, however, does not apply to *bhang*, another form of cannabis that is consumed through eating or drinking.
- There are thousands of cases registered under the NDPS Act in the country each year.

Will India require amendment?

- Since international conventions do not automatically become part of municipal law in India, removing cannabis from the list of dangerous drugs will require an amendment in the Drug and Cosmetics Act.

PM-WANI

⊙ CONTEXT: **The Union Cabinet approved the setting up of public Wi-Fi networks across the length and breadth of the country.**

⊙ ABOUT:

What is Public Wi-Fi access network?

The public Wi-Fi access network interface or PM-WANI aims to improve wireless connectivity. It will be an eco-system operated by different players:

- **Public Data Office (PDO):** These units will establish, operate, and maintain only the WANI compliant Wi-Fi access points and will deliver broadband services to subscribers.
- **Public Data Office Aggregator (PDOA):** These units will be an aggregator of the PDOs and will perform the functions relating to authorization and accounting.

- **App Provider:** An application will be developed to register users and discover the WANI-compliant Wi-Fi hotspots in the nearby area and display them within the application for accessing internet service.
- **Central Registry:** A central registry will maintain the details of the app providers, PDOAs, as well as PDOs.
- This central registry will be maintained by C-DoT or Centre of Development for Telematics, a government-owned telecommunications technology development centre.

Benefits of the Scheme

- **Ease of doing business:** The scheme is expected to be more business-friendly and will be in line with efforts for ease of doing business.
- **High-speed broadband internet service:** The COVID-19 pandemic has necessitated the delivery of high-speed broadband internet service. This can be done by the deployment of a public Wi-Fi network service.
- **Economic development:** The proliferation of a public Wi-Fi network will not only create employment but also enhance the disposable incomes in the hands of small and medium entrepreneurs, which is likely to boost the gross domestic product (GDP).

SUBMARINE OPTICAL FIBRE CABLE CONNECTIVITY BETWEEN KOCHI AND LAKSHADWEEP ISLANDS'

⊙ CONTEXT: **The government has approved provision of submarine optical fibre cable connectivity between Kochi and Lakshadweep Islands, entailing a cost of Rs 1,072 crore.**

⊙ ABOUT:

- The project entails provision of a direct communication link through a dedicated submarine Optical Fibre Cable between Kochi and 11 islands of Lakshadweep -- Kavaratti, Kalpeni, Agati, Amini, Androth, Minicoy, Bangaram, Bitra, Chetlat, Kiltan and Kadmat.
- **Funding:** The project would be funded by Universal Service Obligation Fund.
- **Completion:** The project is expected to be completed by May 2023.
- **Agencies:** State-owned Bharat Sanchar Nigam Ltd. has been nominated as project execution agency and Telecommunications Consultant India Ltd. as the Technical Consultant of the project to assist Universal Service Obligation Fund, Department of Telecommunications.

Optical fibre connectivity

- Optical fibre is the technology associated with data transmission using light pulses travelling along with a long fibre which is usually made of plastic or glass.
- Metal wires are preferred for transmission in optical fibre communication as signals travel with fewer damages.

Fiber optics transmit data in the form of light particles -- or photons -- that pulse through a fiber optic cable.

Significance of the Project

- **Telecommunication connectivity:** The project will vastly improve telecommunication facility in the Lakshadweep Islands by providing large bandwidth.

- **Employment generation:** Telecommunication connectivity plays vital role in employment generation.
- **Effective delivery of e-governance services:** The project would play vital role for delivery of e-Governance services at the doorstep of citizens, potential development of fisheries, coconut based industries and high-value tourism, educational development in term of tele-education and in healthcare in terms of telemedicine facilities.

NEW HEIGHT OF MOUNT EVEREST 8,848.86 METRES: NEPAL, CHINA JOINT SURVEY

⊙ CONTEXT: **After more than a decade of dispute and controversy, China and Nepal have finally agreed on how tall Mount Everest is.**

⊙ ABOUT:

- **Mount Everest:** known in Nepali as Sagarmatha and Tibetan as Chomolungma—straddles the border between Nepal and Tibet at the crest of the Himalayan mountain chain.
- Everest is 50 to 60 million years old, a youngster by geological standards.
- The mountain was formed by the upward force generated when the Indian and Eurasian tectonic plates collided, pushing up the rocks that formed the highest mountain on Earth.
- **Why did Mount Everest's height change?**

  The mountain's height changes. The movement of tectonic plates can lift it up ever so gradually, while earthquakes can bring it down.
- **The new height**
- Nepal and China jointly announced that the revised height of the world's highest peak Mount Everest was 8,848.86 metres, about 86 centimetres more than the previous measurement done by India in 1954.
- This is less than a meter higher than the previously recognized height.
- The new height was calculated using a combination of geodetic data received from three mechanisms: leveling instrument, gravity meter and GPS. The team placed a signal receiver at every station, and measured how much time it took for signals to travel between the receiver and satellites — then converted that measurement into height.
- How high above sea level is just one way of measuring a mountain's height. One reason Everest wins the prize is that its base sits high up on already lofty foothills.

  - As measured from the Earth's core, **Ecuador's Mount Chimborazo** is the world's highest, standing more than 2,072 metres (6,800 feet) above Everest. Because the Earth bulges in the middle, mountains along the equator are farther from the core.
  - Measuring from the foot of the mountain to the peak, **Hawaii's Mauna Kea** is the tallest. Most of it, however, is under the sea.

End to a long-running debate

- The agreement marked the end to a long-running debate over the precise dimensions of the mountain, known as Sagarmatha in Nepal and Qomolangma in Tibet.
- Over the years, the two countries, as well as other governments around the world, have offered up differing estimates of the mountain's height.
- In 2005, a Chinese survey of the mountain estimated that it stood at around 8,844 meters (about 29,015 feet).

- However, since the research was not authorized by Nepal, the country did not recognize it as the official height. At the time, they were using a figure of 8,848 meters (29,029 feet), in line with the findings of a 1955 Indian survey.
- Then in 2015, multiple scientific studies suggested the mountain's elevation may have changed after a 7.8-magnitude earthquake hit Nepal.
- Two years later, the Nepali government for the first time kicked off its own long and arduous mission of re-measuring the height.

WORLDWIDE LEGAL WILDLIFE TRADE INCREASED BY 200%

⊙ CONTEXT: **Worldwide legal wildlife trade have increased by 2,000% since 1980, as per a latest report.**

⊙ ABOUT:

- **The Report**
  - The report has been prepared by the by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).
  - IPBES is an intergovernmental organisation established to improve the interface between science and policy on issues of biodiversity and ecosystem services.
  - It is based on a workshop, held virtually from July 27-31 2020, to review the scientific evidence on the origin, emergence and impact of the novel coronavirus disease and other pandemics.
  - Key-highlights of the Report
  - According to the report, the international legal wildlife trade has increased 500 percent in value since 2005 and 2,000 percent since the 1980s.
  - On the other hand, the estimated value of the global illegal trade in wildlife is worth around $7-23 billion per year, equivalent to nearly 25 percent of the value of the legal market.
- **The warning**

  Even the legal trade will become unsustainable due to:
  - insufficient and inadequate regulation
  - globalisation of trade routes
  - lack of sufficient reporting
  - links between poverty and illegal hunting
- **The role of CITES**
  - Since 1975, international legal trade in wildlife had been regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
  - CITES has 183 countries, including India, as its signatories.
  - The report noted that CITES had been able to reduce wildlife trade, drive up value of sustainably traded species and products and promote captive-breeding, ranching or farming as alternatives to wild capture.
  - However, it added that the international trade in a large number of wild species — principally fisheries and forestry resources — were not regulated under CITES, while the domestic use and trade of wildlife fell outside the purview of the Convention.

DRDO ACHIEVES MILESTONE IN KEY QUANTUM TECHNOLOGY

⊙ CONTEXT: **The Defence Research and Development Organisation (DRDO) achieved a milestone in Quantum Key Distribution (QKD) technology that underwent maiden trials at two of its laboratories establishing highly secure communication.**

⊙ ABOUT:

What is Quantum Key Distribution (QKD)?

- QKD is a secure communication method that uses **cryptographic protocol** involving components of quantum mechanics.
- It is developed by Bengaluru-based Centre for Artificial Intelligence and Robotics (CAIR) and Defence Young Scientists' Laboratory - Quantum Technology (DYSL-QT), Mumbai.
- The technology enables two communicators to produce a random secret key known only to them and later it can be used to encrypt and decrypt messages.
- The successful trial
- The quantum communication using time-bin QKD technology was performed during the trials and the setup demonstrated validation of detection of a third party trying to gain knowledge of the communication.
- As part of a successful trial, the technology was tested in real life conditions and performed well on all parameters.
- As part of the test simulation, an entity trying to gain access to communication was also detected by the system.

What makes QKD unbreakable?

- The security of QKD stems from the ability to detect any intrusion on the QKD transmission. Because of the unique and fragile properties of photons, any third party who tries to read or copy the photons in any way will change the photons' state.
- The change will be detected by the endpoints, alerting them that the key has been tampered with and must be discarded. A new key is then transmitted. Moreover, since the keys generated are truly random, they are protected from future hacking attempts.

⊙ SIGNIFICANCE

- The work being done on QKD technology at DRDO will be used to enable start-ups and small and medium enterprises in the domain of quantum information technologies.
- The technology is expected to help define standards and formulate crypto technology related policies that can use the QKD system in a unified Cipher Policy Committee (CPC) framework in the country for more secure 'key management' for current and future military cryptographic systems.

ELURU MYSTRY DISEASE

⊙ CONTEXT: **A 'mystery disease' has left 450 patients in Eluru, Andhra Pradesh with seizures, nausea, dizziness and headaches. Among tentative reasons being blamed are organochlorides.**

⊙ ABOUT:

- **What are organochlorines?**
  - Organochlorines (OC) are a group of **chlorinated compounds** that belong to the class of **persistent organic pollutants (POPs)** with high persistence in the environment.

- OC insecticides were earlier used to control malaria and typhus; they were later banned in most countries.
- They are widely used as pesticides.
- They are relatively cheaper; as a result **Dichlorodiphenyltrichloroethane (DDT), hexachlorocyclohexane (HCH), aldrin** and **dieldrin** are among the most widely used pesticides in developing countries of Asia.
- **How do these pesticides reach people?**
- **Accidental inhalation:** People can be exposed to organochlorines through accidental inhalation if they are in an area where such pesticides were used or sprayed. The chemicals can also be ingested through fish, dairy products and other fatty foods, which can get contaminated.
- **Accumulation in environment:** Organochlorine pesticides accumulate in the environment. They are persistent and move long distances in surface runoff or groundwater.

- **How can these pesticides affect human health?**
  - **Short-term exposure:** Exposure to organochlorine pesticides over a short period may result in convulsions, headache, dizziness, nausea, vomiting, tremors, confusion, muscle weakness, slurred speech, salivation and sweating.
  - **Long-term exposure:** Long-term exposure to organochlorine pesticides may damage the liver, kidney, central nervous system, thyroid and bladder.

TECHNICAL SPECIFICATIONS OF FLOATING STRUCTURES

CONTEXT: **Ministry of Ports, Shipping and Waterways has compiled the draft guidelines for technical specifications of floating structures, with a vision to set up and deploy world-class floating infrastructure all along the coastline and issued the same for public consultation.**

ABOUT:

- Floating structure because of its inherent advantages, is attractive solution and being encouraged by the Ministry of Ports, Shipping and Waterways.
- The Ministry has successfully implemented a few pilot projects in the recent past by following the international guiding principles. These include
  - setting up of passenger floating jetties in Goa
  - water-aerodromes at Sabarmati River and at Sardar Sarovar Dam (for the seaplane services) which are yielding good results
- More than 80 similar projects of the Ministry are under planning stage all along the coastline for overall development and upliftment of the coastal community.

What are the benefits of floating jetties?

The benefits of floating jetties over the conventional quay and fixed concrete structures are as follows:

- It is a cost-effective solution and much cheaper than conventional structures price.
- Setting up of floating structures is much faster as compared to conventional jetties. Usually, floating structures can be built in 6-8 months as compared to 24 months for conventional structures.
- Its environmental impact is minimal.
- Expansions are easily feasible due to modular construction techniques.
- It is easily transportable in case of reconfiguring of the port.
- It provides constant freeboard between jetties and boats.

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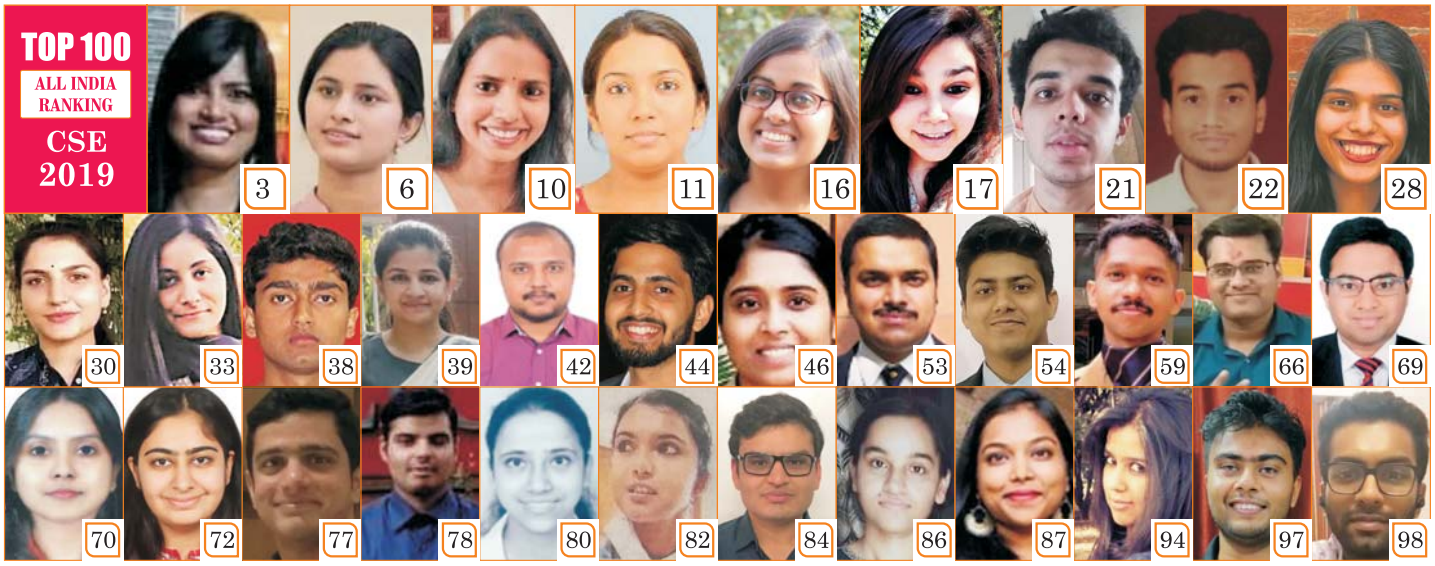

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