CURRENT AFFAIRS WEEKLY

MAINS

GS-I ● COVID-19 Pandemic and Disaster Management

GS-II ● Chinese dam on Yarlung Tsangpo/ Brahmaputra: Should India be concerned?

● SCO Summit

GS-III ● One District One Product: A Potential Gamechanger for Northeast Economies

● Brain Fingerprinting Technology

GS-IV ● COVID-19 vaccine research raises Ethical Issues

PRELIMS

CULTURE ● Idol of Devi Annapurna to be returned by Canada

INTERLATIONAL RELATIONS ● India-Vietnam Trade and Investment Relations

POLITY ● Can Non Resident Indians (NRIs) cast their vote in India?

ECONOMY ● IFSCA obtains Membership of International Association of Insurance Supervisors (IAIS)

● Lucknow Municipal Corporation bonds list on BSE

● World Malaria Report 2020

ENVIRONMENT ● Apex Committee for the Implementation of the Paris Agreement (AIPA)

● Scented Products add to Air Pollution

SCIENCE & TECHNOLOGY ● AI & Robotics Technologies Park (ARTPARK) set up in Bengaluru

● HAL delivers biggest cryogenic propellant tank to ISRO

— Disclaimer—

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- 2 (DECEMBER, 2020)

CONTENTS

GS SCORE
An Institute for Civil Services

IAS 2021-22
GS FOUNDATION

LIVE & INTERACTIVE CLASSES

PATHWAYS
for UNDER GRADUATES
3 & 2 Year IAS FOUNDATION
PROGRAMME

BATCH STARTS **21** JANUARY 2021

IAS 2022
GS FOUNDATION
1 Year & 2 Year PROGRAMME

BATCH STARTS **8** FEBRUARY 2021

BATCH 4

GS MAINS ADANCE
(A Solution for 1250 Marks)

BATCH STARTS **18** DECEMBER 2020

OPTIONAL FOUNDATION

BATCH - 2
PUBLIC ADMINISTRATION FOUNDATION
By: ASUTOSH PANDEY

BATCH STARTS **18** DECEMBER

BATCH - 2
GEOGRAPHY FOUNDATION
By: PRINCE MISHRA

BATCH STARTS **07** DECEMBER

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SECTION: A
(MAINS)

CURRENT AFFAIRS

COVID-19 PANDEMIC & DISASTER MANAGEMENT

CONTEXT

COVID-19 has impacted nations across the world, disrupting lives, economies, and societies. The pandemic has significantly redefined the humanitarian emergency paradigm and changed the understanding of disaster management in several ways.

⊙ BACKGROUND

- India, like the rest of the world, is in the midst of the pandemic. Every nation embroiled in the clutches of the COVID-19 pandemic has adopted different legal instruments at their disposal to cope up with such an unprecedented crisis.

- To combat the spread of the virus, India has invoked the Disaster Management Act of 2005 as the overarching legal tool along with the Epidemic Act of 1897.

- Accordingly, India has declared the pandemic as a 'notified disaster'. India is one of the most populous countries in the world with a relatively fragile health infrastructure.

- Most importantly, at present India is witnessing rapidly rising coronavirus cases.

- Under the circumstances, it seems imperative to assess how the Indian state's perception of the pandemic as a 'disaster' is shaping its response to the present crisis.

Disasters in India in 2020

- **Cyclone Amphan:** Super cyclone **Amphan** created havoc in West Bengal and Odisha in May. Amphan was a tropical cyclone that caused widespread damage in eastern India and Bangladesh.

- **Locust attack:** Millions of desert locusts swarmed six states - Rajasthan, Gujarat, Punjab, Haryana, Uttar Pradesh, and Madhya Pradesh – in May-June. It was said to be one of the worst pest attacks in over 2 decades. The locusts which entered India were about 10-12 days old and were flying huge distances in search of food.

- **Cyclone Nisarga**: Cyclone Nisarga made landfall on the Maharashtra coast near Alibaug, a popular getaway about 100 km from Mumbai, in June.

- **Mumbai Floods:** Mumbai witnessed incessant **rainfall** in August bringing back the memories of the 2005 floods in the city.

- **Assam Floods:** Like previous years, this year too Assam has witnessed a devastating flood.

⊙ ANALYSIS

Is COVID-19 a disaster?

- COVID-19 is the first pan India biological disaster being handled by the legal and constitutional institutions of the country.

- The lockdown imposed was under the Disaster Management Act, 2005 (DM Act).

- The legislative intent of the DM Act was to, "provide for the effective management of disasters".

- Though the Constitution of India is silent on the subject of 'disaster', the legal basis of the DM Act, is Entry 23, Concurrent List of the Constitution "Social security and social insurance".

- Entry 29, Concurrent List "Prevention of the extension from one State to another of infectious or contagious diseases or pests affecting men, animals or plants," can also be used for specific lawmaking.

National Disaster Management Authority (NDMA)

- The National Disaster Management Authority (NDMA) under the DM Act is the nodal central body for coordinating disaster management, with the Prime Minister as its Chairperson.

- The NDMA lays down policies, plans, and guidelines for the management of the disaster.

- Similarly, State, District, and Local level Disaster Management Authorities were established, manned by high functionaries. All these agencies are envisaged to work in coordination.

How COVID-19 has changed the perspective for disaster management?

- **Not geographically contained:** The crisis is not limited by a geographic area or a cluster or physically defined areas in which the disaster occurred — as in an earthquake, flood, or cyclone.

- **Microscopic effects:** Effects of the disaster are so microscopic and invisible that one can easily underestimate its virulence or potency, as it happened in the early days of the pandemic.

- Earlier epidemics like SARS (Severe Acute Respiratory Syndrome) and those due to bird flu and Ebola had a relatively lower geographical influence, but the speed of transmission and virulence of COVID-19 has posed an entirely new challenge.

- In countries like India, high population densities, coupled with the impossibility of physical distancing in small housing units, lack of running water and toilets, shortage of hygiene materials, and personal protective equipment have exacerbated the infection rates.

> **Disaster Management adapted by India**
> - Proof of Concept with Social Experiment
> - Proactive Approach
> - People Management
> - Partnership
> - Preparation and Collaboration

-

How India's labelling of the pandemic as a 'disaster' has shaped its actions?

- Treating a health crisis as a 'disaster' has some deep-rooted definitional as well as instrumental ramifications shaping India's response to the pandemic.

- **Externalisation of the disease:** It has led to the 'externalization' of the disease. A disaster is usually perceived to be caused due to a force that is alien to our lives and usually intrudes into our internal space to create havoc.

- **Repression as Regulation:** Another outcome of labelling this health pandemic as a disaster has been the normalization of the controlling measures by the state in order to curb the spread of the virus.

State capacity and health care:

- The outbreak of the infectious pandemic has triggered unprecedented life and livelihood crisis for the people of the country.

- The crisis has warranted a more efficient and robust health infrastructure that has the capacity to provide healthcare to such a large number of

COVID19 patients.

- India's public health infrastructure has already been in a dysfunctional state before the pandemic.

- The emerging health crisis of such a huge scale has crippled the system further with limited testing capacity, shortage of hospital beds, and inadequate treatment.

- In such a situation, accessing healthcare from highly unaffordable private hospitals is nearly impossible for the majority sections of the population.

- What are the lessons learned from the pandemic?

- **The unpredictability of disasters:** With the nature of disasters changing constantly, they can surprise us by their unpredictability and speed of onset, despite our access to the most advanced and sophisticated information and early warning systems.

- In recent disasters, the inability to predict the incidence of mudslides or the amount of water to be held or released in dams during heavy rains — whether in Mumbai, Kerala, or Chennai in recent years.

- The ferocity of volcanic discharges recently in the Philippines and New Zealand surprised many scientists and earthquakes continue to surprise us with their relative unpredictability.

- **The inability of the administration:** One of the issues that came to the forefront in the COVID-19 crisis in India was the seeming inability of governments to anticipate the impact of the suddenness of the lockdown on migrant laborers in various parts of the country.

- **Speed of response:** The speed of response would need to be gauged not only how quickly the government enforced physical distancing and lockdowns, but also in the speed and reach of preventive messaging. The speed of response is often linked to the ability to procure materials in a timely and cost-effective manner in every disaster.

- **Coordination:** One important lesson is that of coordination between the various stakeholders. This has become even more critical as multiple disasters striking simultaneously.

What about Social Security and basic rights?

- Besides the health crisis, the pandemic has inflicted one of the worst economic turmoil all over the world due to prolonged lockdown.

- In India, the unorganized labor of the informal economy which constitutes 93% of its economy has been the worst hit due to joblessness and social insecurity during the crisis.

- A large section of unorganized labor who works as

migrants in cities couldn't return to their families residing in their native places due to the sudden declaration of the national lockdown.

⊙ Caught in between economic hardship, health crisis, and absence of family support, many of them were compelled to walk on foot to their native home as transport facilities were halted. This also led to the loss of lives.

⊙ Many were also forced to stay back in cities in the government shelters which had inadequate facilities.

⊙ Even when they were allowed to travel home, they faced social stigma from the administration and community back in their native states as they were suspected of carrying the virus.

⊙ As the unlocking has started in India, their conditions are turning worse without adequate state assistance for basic survival.

How to resettle the priorities?

⊙ The Disaster Management Act might not be categorically designed for dealing with a health crisis.

⊙ S**ub-section 3 (a) of entry 11 of the Act** acknowledges the need for "preparedness and capacity building to effectively respond to any threatening disaster situation".

⊙ Also, **entry 12** mentions about "minimum standard of relief to be provided to persons affected by the Disaster".

⊙ However, in the case of India, the situation reveals that the state, despite some concerted efforts, has been unable to adequately deliver on the dual needs of healthcare and social security for the weaker sections during the pandemic.

⊙ The emphasis on the repressive measures to deal with the 'external enemy', the pandemic which is seen as a 'disaster' might have overshadowed the necessity of state care and responsiveness to mitigate the crisis.

⊙ Such a situation raises serious questions about the state's preparedness in battling the pandemic as a 'disaster.'

What needs to be done?

⊙ **Collaboration:** There is a need for strengthening collaboration, command, control, and communication systems for efficient, prompt, and graded response and recovery.

⊙ **Infusing technology:** Technology cannot replace or make up for other public policy measures, but it does have an increasingly critical role to play in emergency responses. Covid-19 presents an excellent opportunity to reflect on the legal plausibility, ethical soundness, and effectiveness to use emerging technologies to inform evidence-based public health interventions.

⊙ **Strong technology infrastructure:** Access to a robust, resilient, and secure ICT infrastructure worldwide is critical in a pandemic, and any kind of disaster.

⊙ **Community-based public health emergency preparedness:** There is a need for prioritizing the COVID-19 prevention and control in informal settlements, to assess the community risk perception, and thought process to enable community-based public health emergency preparedness and risk-informed policymaking in the future.

⊙ **Multi-hazard preparedness:** Multi-hazard preparedness with a focus on the health needs to be integrated across sectors. Risk assessments and risk preparedness should emerge as a culture for the next generations to enable better management of disasters and public health emergencies.

⊙ **Responsible administration:** Good governance, responsive administration, and active coordination should be non-negotiable features of a dynamic process that is driven by transparency and accountability on the part of public officials.

⊙ **Advanced preparedness strategies:** Documentation of best practices, creating a knowledge platform for lessons-learning will promote inclusive, participatory, and well-informed preparedness strategies.

⊙ CONCLUSION

Undoubtedly, India's large population poses an administrative challenge in dealing with any disasters, especially with pandemics such as COVID-19. However, overall management can be strengthened through collaboration and effective measures.

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CHINESE DAM ON YARLUNG TSANGPO/ BRAHMAPUTRA: SHOULD INDIA BE CONCERNED?'

CONTEXT

In a move that could have long-term impact on northeast India's water security, China has said it will build a "super" dam on the lower reaches of the Yarlung Zangbo river, close to the Line of Actual Control, in Tibet.

◉ BACKGROUND

- ◉ The China-India hydropolitics over the Yarlung Tsangpo/Brahmaputra has generally been perceived as "hydro-hegemon" China's ill intent towards downstream India's interests.

- ◉ Earlier, a host of contentions were floated about China's gravity dam project, the **Zangmu Dam** on the **Yarlung Tsangpo/Brahmaputra system** on the northwest of **Gyaca** in the Tibet Autonomous Region (TAR) of China.

- ◉ As such, many such incidents over the Brahmaputra in the Indian boundary have been attributed to China's evil designs against India.

  - ➤ the increase in turbidity and blackening of waters in Tsiang (the name of Yarlung Tsangpo in Arunachal Pradesh)

  - ➤ news of a series of check dams being constructed along the Tibetan boundary.

  - ➤ temporary stoppage of data sharing by China over the high season flows as per the China-India MoU during the Doklam standoff

India and China have a water data sharing agreement

- In 2017, China had stopped sharing data soon after the 73-day long stand-off between Indian and Chinese troops at Doklam over Chinese military's plans to build a road close to India's Chicken Neck corridor connecting North-Eastern states.

- In 2018, a MoU was inked between China's Ministry of Water Resources and India's Ministry of Water Resources, River Development and Ganga Rejuvenation on sharing hydrological information of the Brahmaputra in flood season by China to India.

  - ➤ The agreement enables China to provide hydrological data in flood season from May 15 to October 15 every year.

  - ➤ It also enables the Chinese side to provide hydrological data if water level exceeds mutually agreed level during non-flood season.

- ◉ The latest China's decision to build a new dam has raised concerns in India Beijing's inclination to control the flow of Brahmaputra river.

◉ ANALYSIS

What is the Chinese Plan?

- ◉ China is planning to build the dam as part of the proposal for the country's **14th Five-Year Plan** that will be implemented next year.

- ◉ China has already been formulating the five-year plan for the communist nation, as well as long-term goals through 2035.

- ◉ The dam could come up in the Medog county of Tibet, which is close to Arunachal Pradesh. China has already built several smaller dams on the Yarlung Zangbo.

- ◉ The new dam's ability to generate hydropower could be three times that of central China's Three Gorges Dam, which has the largest installed hydropower capacity in the world.

- ◉ China will "implement hydropower exploitation in the downstream of the Yarlung Zangbo River" (the Tibetan name for Brahmaputra River).

- ◉ The project could serve to maintain water resources and domestic security in China.

Yarlung Zangbo

- The Yarlung Zangbo River (YZR) is the highest river in the world.

- The trans-border Yarlung Zangbo originates originates from the Majieyangzom glacier in the southwest of the Tibetan Plateau and flows into Arunachal Pradesh where it is called the Siang and then to Assam as the Brahmaputra before flowing into Bangladesh.

Why Brahmaputra is important for India?

- ◉ The Brahmaputra flows for over 3,000km through Tibet, India and Bangladesh.

- ◉ Brahmaputra river is crucial for India too as its basin is a critical water source for Arunachal Pradesh, Assam, Meghalaya, Sikkim, Nagaland and West Bengal.

⊙ The Brahmaputra valley supports the lives of several indigenous communities.

⊙ The Brahmaputra is an important resource for India's own water diversion plans – the national river interlinking project – and is considered a powerhouse to meet India's energy demands in the future.

What will the impact on downstream India?

⊙ The gravity of this intervention and its impact on downstream India need to be understood from the perspective of existing hydrological flow and precipitation regimes.

● **Hydrology and precipitation**

 ➤ At the very outset, both the hydrology and precipitation over the **Yarlung Tsangpo/ Brahmaputra** are highly correlated, despite the fact that the system is fed by rainfall, as well as snow and glacial melts.

 ➤ The contribution of snow and glacial melt to the flow is substantially low in the overall stretch; however, its contribution is higher in the upper reaches of the flow which are in the rain-shadow region.

 ➤ Of the total 2,880 kilometres (kms) length of the Yarlung Tsangpo/ Brahmaputra,

   ● **Tibet (2,880 km):** 1,625 kms flows through the Tibetan plateau with the name **Yarlung Tsangpo**

   ● **India (918 km):** It assumes the names of Siang, Dihang, and Brahmaputra in its 918 kilometres in India

   ● **Bangladesh (337 km):** the rest of the 337 kilometres in Bangladesh is named the Jamuna till its confluence with the Ganges near Goalando.

● **Maximum flow of the system:**

 ➤ Though this geographical distribution of length gives an apparent impression that the maximum flow of the system occurs in the TAR of China, it is a myth.

 ➤ Rather, the system becomes stronger and fatter as it flows further downstream.

 ➤ It needs to be noted here that the Brahmaputra is identified as the flow downstream of the confluence of three tributaries, namely the Lohit, Dibang, and Dihang, near Sadiya in the Indian state of Assam.

● **Rainfall**

   ● A huge variability is noted in the precipitation and run-offs.

● A large part of the Tibetan component of the basin, i.e. the longer stretch of the Yarlung, is located in the rain-shadow north aspect of the Himalaya, and is therefore a recipient of much less rainfall as compared to the south aspect.

● Therefore, while the average annual precipitation in the trans-Himalaya is around 300 mm, the average annual precipitation (that includes mainly rainfall) reaches about 3,000 mm in the south aspect just after crossing the crestline.

● The foothills are frequently fed by anomalous precipitation of a magnitude that is capable of causing great floods.

● Within the Brahmaputra valley in Assam, the average annual rainfall is higher in the northeastern areas and gradually decreases towards the western parts.

● In the peak flow periods, the Brahmaputra is fed by the monsoon rainfall.

● **Peak Flow**

 ➤ While the peak flows at Nuxia and Tsela Dzong — measuring stations at the great bend in the Tibetan plateau — are about 5,000 and 10,000 cubic metres per second (cumecs), the peak flow at Guwahati in Assam is approximately 55,000 cumecs.

 ➤ The lean season flow in Nuxia is in the range of 300-500 cumecs, while the lean flow at Pasighat in India is to the tune of 2,000-plus cumecs, the one at Guwahati is around 4000-plus cumecs, and at Bahadurabad it is about 5,000 cumecs.

 ➤ Summarily, the annual discharge of 31.2 billion cubic metres (BCM) at Nuxia simply does not compare with annual discharges of Pandu/ Guwahati (494 BCM) or that of Bahadurabad in Bangladesh (625 BCM).

● **Sediment regime**

 ➤ The sediment regime also follows the same pattern, with the run-off in the rain-shadow region not being sufficient to carry the massive sediment load recorded downstream.

 ➤ The Brahamputra's large mainstream flows of water and sediments are contributed by many of its large tributaries including Dibang, Dihang (Siang), Luhit, Subansiri, Manas, Sankosh, Teesta, etc.

 ➤ While Nuxia records an annual suspended sediment load of around 30 million metric tonnes, the same is recorded at 735 million metric tonnes in Bahadurabad.

- **Potentially utilisable water resources (PUWR)**
  - ➤ The potentially utilisable water resources (PUWR) of the Brahmaputra is barely 25 percent in terms of data from the erstwhile Ministry of Water Resources (presently MoJS).

Therefore, given the precipitation, run-off and sediment flow regimes, it is unlikely that any intervention on the Yarlung Tsangpo in the north aspect of the Himalaya can cause any substantial harm for downstream economies including India and Bangladesh, irrespective of Chinese intent. This is largely true given the location of the Zangmu hydropower project.

The present proposed project

- ◎ The above conclusion cannot be stated for the present proposed project in the Medog county of TAR.

- ◎ This is because, the Medog county in TAR lies in the south aspect of the Himalayas, where the flow of the mainstream Yarlung is enhanced by the flow of another tributary Parlung Tsangpo.

- ◎ In Medog, the annual average precipitation is of 3,000 mm, substantially higher than the 500 mm recorded at Nuxia.

- ◎ Moreover, there is some dispute with the annual discharge data of the Yarlung at the point of leaving China.

- ◎ While estimates by some Chinese scholars state that the discharge is of the tune of 135.9 BCM, the ministry data suggests the same to be 78.1 BCM.

- ◎ The percentage divergence between the two data sets is quite big.

- ◎ However, some older estimates in India suggest that the discharge in Tuting in Arunachal Pradesh is 179 BCM.

- ◎ Therefore, in percentage terms, the contribution emerging from the Chinese boundary to the immediate point in the Indian boundary cannot be stated to be negligible, though this turns out to be of not much significance to the run-offs in the Assam floodplains in India or the Jamuna floodplains in Bangladesh.

What role does water play in stimulating international conflict?

- ◎ Today, water remains a politically contested issue in much of South Asia.

- ◎ **Water shortage and rapid urbanization:** South Asia is facing water shortage and agrarian difficulties, and this difficulty is likely to continue due to increasing demands on energy and water with rapid industrialisation.

- ◎ **Over-exploitation:** Over-extraction of groundwater is becoming a huge concern, with an estimated 23 million pumps are in use across Bangladesh, India, Nepal and Pakistan.

- ◎ **Salinity and contamination:** Besides, salinity and arsenic contamination affect over 60 percent of groundwater in the Indo-Gangetic plain.

- ◎ **Climate Change:** Combine these factors with the impact of climate change that's reducing the amount of water in the Brahmaputra basin and changing the patterns of water flow.

Under such circumstances, the increasing need for power and stable water levels could prompt reconsideration in bilateral water-sharing treaties in future. Freshwater is a precious commodity and a strategic asset whose importance in geopolitics cannot be underestimated.

What India needs to do?

India now needs to be more adept in responding to Brahmaputra river-related issues.

- ◎ **Clear vision:** India needs to clearly envision the desired end goal and strategic outcomes for dealing with impending water conflicts.

- ◎ **Re-strengthening relationship:** India needs to de-emphasise China's role and re-strengthen its relationship with Bangladesh by pushing the impending Teesta river agreement.

- ◎ **Strong negotiations:** It needs to mirror its strength and firmness in negotiations with China on water rights, as it did in the case of the Doklam stand-off and in opposing the Belt and Road Initiative, rather than projecting itself as a victim.

◉ CLOSURE

Speculation about China planning to build a 'super hydropower station' in Medog county, where the Yarlung Zangbo Grand Canyon is located, have circulated for years. Medog, with a population of about 14,000, was China's last county to be connected to the outside world with a highway. For India, the dam in Medog can have negative impacts on Arunachal Pradesh, but there does not seem to be any impact on Assam and Bangladesh.

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SCO SUMMIT

CONTEXT

For the first time, India hosted the Shanghai Cooperation Organisation (SCO) heads of government meeting after it joined the eight-member grouping in 2017.

◉ BACKGROUND

- India assumed the chair of the SCO Council of Heads of Government on November 2 last year as per rotation from the previous chair – Uzbekistan – and will complete its year-long tenure on November 30 by hosting the summit.

- In November, Chinese President Xi Jinping and Prime Minister Narendra Modi participated in the SCO Council of heads of state (SCO-CHS), the highest forum of SCO, meeting hosted by Russia in a virtual format.

- It is the first time that a summit-level meeting is held under India's chairmanship, since it gained full membership of the organisation in 2017.

- According to the reports, India has usually been represented at meetings of the SCO council of heads of government at the level of the external affairs minister, while defence minister Rajnath Singh had attended last year's meeting in Uzbekistan.

- India hopes to further strengthen cooperation in trade, economic and cultural spheres within the bloc.

◉ ANALYSIS

What is SCO?

- The SCO is an economic and security bloc in which India and Pakistan were admitted as full members in 2017.

- Its founding members included China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.

- Its driving philosophy is known as the "Shanghai Spirit" which emphasises harmony, working by consensus, respect for each other's culture, non-interference in the internal affairs of others and non-alignment.

- The SCO Summit is the grouping's main body that sets the agenda for the coming year.

Historical Background

- After the collapse of Soviet Union in 1991, the then security and economic architecture in the Eurasian region dissolved and new structures had to come up.

- The original Shanghai Five were China, Kazakhstan, Kyrgyzstan, Russia and Tajikistan.

- The SCO was formed in 2001, with Uzbekistan included.

- It expanded in 2017 to include India and Pakistan.

Key-takeaways of the Meet

- **Participants:** The meeting was attended by prime ministers of Russia, China, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan while Pakistan was represented by its parliamentary secretary for foreign affairs.

- **Overcoming COVID challenges:** The focus of the 66-point joint communiqué at the end of the virtual conference was in developing a **"Plan of Priority Practical Measures for 2021-2022 to overcome the socio-economic, financial and food consequences of COVID-19 in the region"**.

- **Strengthening multilateralism:** Members committed to strengthening multilateralism and the UN charter while welcoming the fact that the grouping is now being seen as an "influential and responsible participant in the modern system of international relations".

- **On 'One Belt, One Road'**
  - A joint communique issued at the end of the 19th summit of SCO Council of HoG meeting said Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan and Uzbekistan reaffirmed their support for China's 'One Belt, One Road' (OBOR) initiative and noted the ongoing work on joint implementation of the project.
  - India has been opposing the project as the China-Pakistan Economic Corridor (CPEC), which is part of the OBOR, passes through Pakistan-occupied-Kashmir (PoK).

- **Bilateral difference:**
  - **India and Pakistan:** The meeting also showed up persisting differences. Although the HoG Council consists of the Prime Ministers of all SCO countries, neither Prime Minister Narendra Modi nor Pakistan Prime Minister Imran Khan attended the meet.

- Mr. Modi was represented by Vice-President Venkaiah Naidu, who made strong observations on cross-border terrorism; he called it the SCO region's "biggest challenge", in comments aimed at Pakistan.

- Pakistan's representative too spoke of the need to combat what she called "state terrorism" in disputed areas, in a reference to Jammu and Kashmir.

➤ **India and China:** India also marked its differences with China over the BRI by not joining other SCO members in a paragraph endorsing the BRI.

- Mr. Naidu made a pitch for "transparent and trustworthy" trade practices, seen as a sidebar aimed at China.

➤ Regardless of the differences, the Modi government has consistently maintained the importance of the SCO grouping, referred to as the "Asian NATO" although it does not mandate security alliances.

➤ The SCO is one of the few regional structures India is a part of now, given a decline in its engagement with SAARC, BBIN and the RCEP.

➤ The SCO provides India a convenient channel for its outreach — trade and strategic ties — to Central Asian countries.

➤ While the government has eschewed meetings with Pakistan for the last five years, it has used the SCO for talks with China, including this year amidst the LAC stand-off, when Rajnath Singh and S. Jaishankar met their counterparts on the sidelines of SCO meets.

How can the SCO help?

◉ **India's connect to Central Asia:** The SCO has another strategic importance in Asia due to its geography, which enables the bloc to have a strong connection with Central Asia, limiting the US' influence in the region. SCO is also a potential platform to advance India's Connect Central Asia policy.

➤ India does not need the format to take care of its relations with countries like Kazakhstan, Tajikistan, or Uzbekistan.

➤ But a primary obstacle to New Delhi's cooperation with Central Asia is the geographic reality that it is separated from the region by a hostile Pakistan and unstable Afghanistan.

◉ **Wider coverage:** The SCO covers around 40 percent of the global population, nearly 20 percent of the global GDP and 22 per cent of the world's land area.

◉ **Anti-terrorist structure:** Regional Anti-Terrorist Structure (RATS), established in 2002 under the aegis of the SCO, is mandated for counter-terrorism activities, collecting military intelligence and security of the SCO region.

◉ **Stronger economic relations:** Arguably its interests are to have its economic relations with the region flourish, to find ways to enhance the connections, and to cooperate in combating terrorism.

◉ **Bilateral discussions:** It has afforded a platform, when needed, for bilateral discussions with the two countries India has the most tense ties with: China and Pakistan.

◉ **Geopolitical balance:** Above all, the SCO has been seen as a grouping worth pursuing as it retains India's geopolitical balance, a useful counterpoint to New Delhi's otherwise much more robust relations with the western world, and hosting the SCO meeting was one more step towards developing that engagement.

What are the challenges for India in the grouping?

◉ One of New Delhi's most important challenges is to hold the threats posed by Pakistan and China at bay. And yet New Delhi joined the SCO, which has Beijing as one of its founding fathers and guiding spirits.

◉ New Delhi's policy toward Beijing in the last few years has been cautious.

◉ India avoided direct confrontation (apart from the Doklam moment), but involved itself in proxy wars of influence with China in the region (in Nepal, Sri Lanka, and the Maldives) and enhanced cooperation with friendly nations of the Indo-Pacific (clearly, though not outspokenly, against China's rising presence), all while extending a highly-raised diplomatic hand of friendship in bilateral relations with China (the Wuhan and Mamallapuram summits).

◉ Perhaps it can be said that New Delhi wants to keep talking to Beijing and avoiding direct conflict as much as possible (as it can't win).

◉ But at the same time, India attempts to contain China's influence in the region by cooperating with its South Asian neighbors and like-minded states (like the United States, Japan, and France).

Will India achieve its goals through SCO?

◉ **No desirable goals:** Afghanistan is certainly important for India. But, it is Pakistan that is part of the SCO, not Afghanistan. This means that Islamabad will take care of its own goals in the same region within the SCO.

- **Only dialogues:** Any form of joint containment of Chinese influence in the region would not happen within the confines of the SCO. We are therefore left with dialogue: The SCO is one more avenue of dialogue with Beijing, but that is all it is.

- **Questionable anti-terrorist structures:** It also raises the question of intelligence sharing within the SCO's anti-terrorist structures, as these could lead to India sharing data with Pakistan and China.

- **Uncertainty:** The SCO is not an "alliance of the East," or an "anti-NATO" as some predicted it would become years ago. Had it been going that way, India would not have even wanted to participate. It is a hardly influential format of divided states, an international organization with negligible achievements and uncertain future.

- **Rivals:** From the perspective of India's major objectives, any larger benefit of taking part in the bloc will be cancelled by the fact that the organization includes India's key rivals as members.

> **Will the platform help to find route to Afghanistan?**

- One of India's grand strategic plans to find a land route to Afghanistan (and hopefully beyond to Central Asia) is to establish a connection through Iran's Chabahar port.

- Thus, one of the most important initiatives that may open a new road from India to Central Asia depends on trilateral India-Afghanistan-Iran cooperation (whether it will work or not is another issue).

- The SCO is not helpful in this regard as Afghanistan and Iran are merely observers.

⊙ CLOSURE

In less than two decades, SCO has emerged as an eminent Eurasian construct. Its geostrategic pillar, which prioritises tackling security threats, remains the most enduring fulcrum of its membership. India now needs to take strong initiatives to not only strengthen regional cooperation but also utilise SCO summit meetings to cement bilateral engagements with SCO member states. Looking North is now more imperative than ever before.

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ONE DISTRICT ONE PRODUCT: A POTENTIAL GAMECHANGER FOR NORTHEAST ECONOMIES'

CONTEXT

The Centre is mulling a "one product one district" scheme to boost manufacturing hit by Covid-19 and it has begun initial preparations with the states. The scheme can act as a potential game-changer for Northeast economies

◉ BACKGROUND

- Northeast India — comprising eight pristine States along the Himalayas that share 98 percent of their land border with neighbouring nations including Bangladesh, Myanmar, Bhutan and China.

- People in the Northeast have preferred sustainable thinking and planning, and community involvement has been a pre-condition for development-based initiatives.

- The region has always faced challenges of geographic and economic integration with mainland India.

- The inability of regional and central leadership to bring along opportunities that could empower the citizens of the region have often led to a surge in protests in the region demanding economic and social justice.

- The citizens of Northeast India have time and again been blaming Delhi for the step-motherly treatment it has received over the years.

◉ ANALYSIS

Why 'development' is becoming a major issue?

- The predominantly tribal population of the Northeast have always believed in sustainable development and have resisted the economic exploitation of the land and its resources by governments in the past.

- The Northeast has always been a predominantly agrarian economy with immense potential for agriculture.

- Additionally, the inhabitants of the land — consisting of a number of tribes and sub-tribes — have had a vigorous craft tradition and almost every tribe in the region excels in craftmanship.

- However, even though the Northeast has been producing the best quality spices, herbs, vegetables and fruits for years, the region has had minimal institutional support from the government at the local level.

Other major issues
- lack of economic development
- connectivity or access to the mainland
- logistics, storage, connect to buyers worldwide and training
- the pursuit of economic developent

How will ODOP Scheme help?

- The government seems to have finally struck the right chord in the Northeast with the aspirational One District One Product (ODOP) scheme, which aims to boost the economy of the region district by district through encouraging indigenous and specialised products of each district.

- The new ODOP programme has come as a new ray of hope for the people of the region as it aims towards giving a push to the ailing traditional industries by working alongside the local communities and empowering the citizens through the **Make in India** campaign.

- The programme aims to promote local indigenous specialised products and the crafts of each district through various development initiatives, including

  ➤ providing loans to local production units, artisans, and farmers

  ➤ establishing common facility centres

  ➤ helping market these products at a global level

  ➤ facilitating these traditional craft and art forms to gain an international market and be preserved for the next generations.

Significance of the initiative:

- **Empowerment:** These steps will increase income and local employment at the bottom of the value chain and can empower the craftsmen, artisans, and farmers to improve their product quality and attain newer skills to produce better products.

- **Bridging the gap:** The possibilities are immense for the ODOP initiative to bridge the gap between

the Northeast and the rest of the country while also pushing through a sustainable development model.

◉ **Game changer:** If implemented well in the Northeast, the ODOP could be a game changer for the economy of the region.

What are the recent Government initiatives in the region?

In a bid to address the concerns, government has proactively taken steps to integrate the Northeast with the rest of the country through various initiatives such as

◉ the Act-East Policy

◉ Northeast Special Infrastructure Development Scheme

◉ Non Lapsable Central Pool of Resources (NLCPR) Scheme

What other efforts are required for the region?

◉ **Focus on priority sector:** Agriculture is northeast's priority section, with the region's very high dependence on agriculture and allied activities, comprising over 80 percent of the Region's gross domestic product.

◉ **Employment generation:** Non-Farm Rural Employment and Income Generation, especially handlooms, handicrafts and animal husbandry.

◉ **Inclusive governance:** Inclusive growth calls for attention to inclusive governance and rural development.

◉ **Infrastructure development:** With 96 per cent of the borders of the NE Region constituting **international boundaries**, it is necessary to factor "new inputs" in foreign, defence, internal security and international trade policy. To this end, the immediate priority is to build the required infrastructure right up to the border areas, establishing connectivity and communication links to the cross-border points.

The road ahead

The government has already started taking steps in this direction. **Invest India,** the Government's investment promotion and facilitation agency has been entrusted with implementing the programme at the ground level and it has already started connecting with stake-holders from various indigenous industries in the region, handholding them towards making their product global. If this works, and there are high hopes that it will this time around, it could pave the way for a new dawn for Northeast India and its people, provided the balance between over-commercialisation and indigeneity is valued by the government and its agencies.

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BRAIN FINGERPRINTING TECHNOLOGY

CONTEXT

The four accused in the Hathras gang rape case will undergo brain fingerprinting, the neuropsychological interrogation.
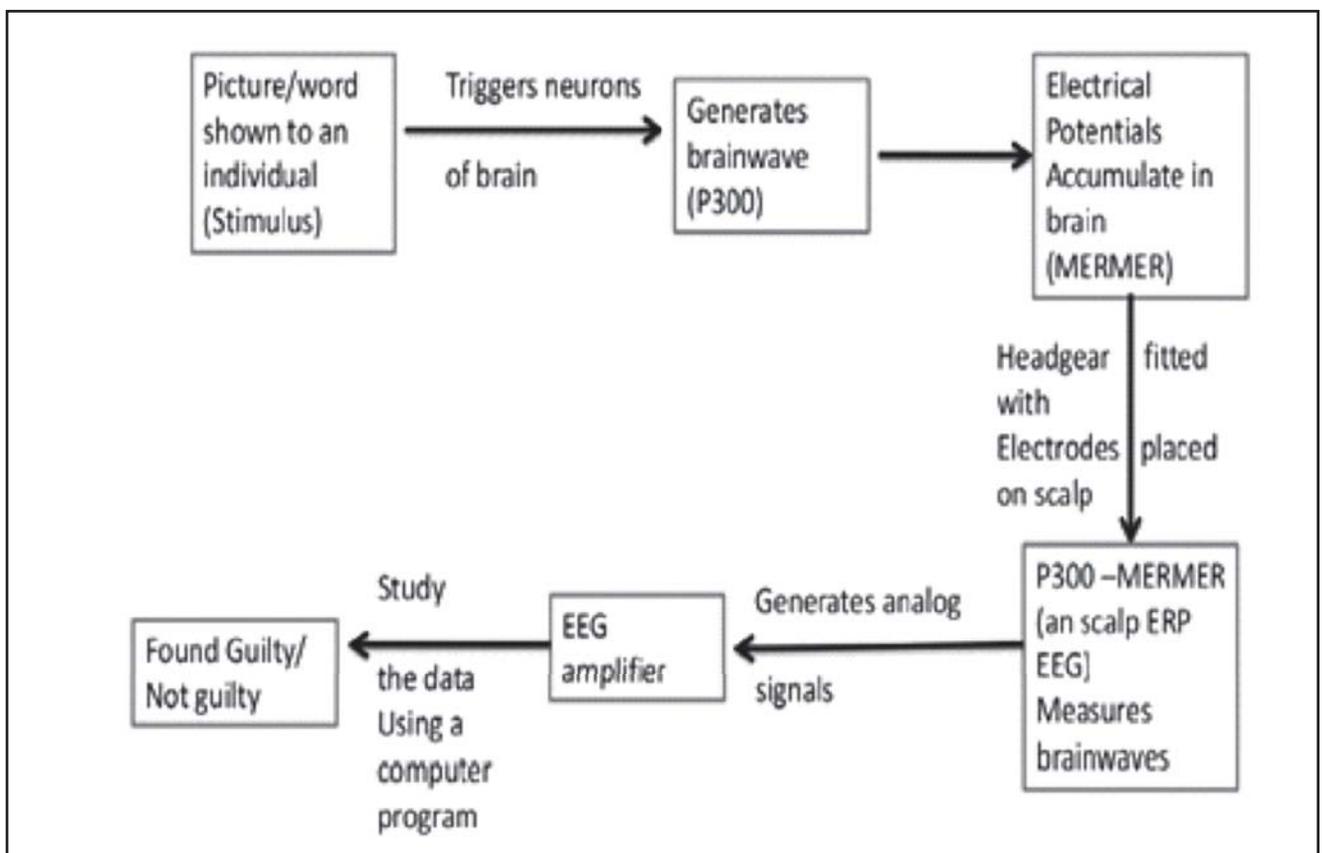
⊙ BACKGROUND

- The Central Bureau of Investigation (CBI), which is probing the alleged gang-rape and murder of a 19-year-old Dalit woman in Hathras of Uttar Pradesh, has brought all the four accused in the case from Aligarh jail to the Foreinsic Science Laboratory (FSL) lab in Gandhinagar for brain mapping and polygraph tests.

- The brain fingerprinting technique was actually first developed and patented in 1995 by Lawrence A. Farwell of the U.S.A. Police in India have used brain fingerprinting since 2003.

- This technology is being increasingly put to use, as a matter of fact, it is often seen playing a part in separating the guilty from the innocent.

- Police Officers believe that it assists an overworked police force to amplify their evidence and expedite the often tortuously drawn-out process of conviction.

⊙ ANALYSIS

What is Brain Fingerprinting?

- In brain fingerprinting, a headset with two electrodes is put on the head of the suspect. One electrode is placed on the forehead between the eyebrows while the other is put on the back of the head where the brain stores experiential memory.

- The electrodes are connected to a laptop with brain fingerprinting software via Bluetooth.

- Details and photographs of the crime scene which are not in public domain are projected on the screen in front of the suspect.

- If the suspect is involved in the crime the moment he sees the details, his brain recognises the picture and sends a specific, measurable brain response known as a P300 to the software.

- This movement is called P 300 MERMER ("Memory and Encoding Related Multifaceted Electroencephalographic Response"), which is captured on the computer.

⊚ The P300 is not the only brainwave used by brain fingerprinting technologies.

⊚ In 1997, Indian neuroscientist Champadi Raman Mukundan developed a different technique called the Brain Electrical Oscillatory Signature (Beos) test, which measures the recall of memory through a smorgasbord of subtle changes in brain activity data.

What is the BEOSP test?

⊚ According to the National Center for Biotechnology Information (NCBI), the BEOSP (or the BEOS) is an electroencephalogram (EEG) technique by which a suspect's participation in a crime is detected by eliciting electrophysiological impulses.

⊚ The technique, also referred to as 'brain fingerprinting', has been categorised as "non-invasive" and a legitimate neuro-psychological method of interrogation.

⊚ The methodology was developed by CR Mukundan, a neuroscientist at the National Institute of Mental Health and Neurosciences at Bangalore.

Other important tests

These tests, which are often used as aid during investigations by probe agencies, are different from each other, but are all aimed at collecting vital information.

- **Narco-analysis** is a controlled administration of intravenous hypnotic medications called truth drugs on a suspect to procure vital information.

- A **polygraph**, popularly referred to as a lie detector, is an instrument that measures and records several physiological indices such as blood pressure, pulse, respiration and breathing rhythms and skin conductivity while a suspect is asked a series of questions.

  ► Deceptive answers are said to produce physiological responses that can be differentiated from those associated with non-deceptive answers.

Application of the technique

⊚ Brain fingerprinting can help in addressing the following critical elements in the fight against terrorism:

  ► Aid in determining who has participated in terrorist acts, directly or indirectly.

  ► Aid in identifying trained terrorists with the potential to commit future terrorist acts, even if they are in a "sleeper" cell and have not been active for years.

  ► Help to identify people who have knowledge or training in banking, finance or communications and who are associated with terrorist teams and acts.

  ► Help to determine if an individual is in a leadership role within a terrorist organization.

Is it admissible in Court?

⊚ The results of the brain fingerprinting test may not be admissible in the Indian courts, but the technique helps investigative agencies find clues in complicated cases.

SC on Forensics

- In May 2010, the Supreme Court held that forcing suspects and witnesses to take these tests without their consent was unconstitutional and amounted to violation of their right to privacy.

- A three-judge bench had held that "the compulsory administration of the impugned techniques violates the right against self-incrimination."

- The court noted that the compulsory administration of the techniques violated "the right against self-incrimination ... unjustified intrusion into mental privacy, and amount[ed] to cruel, inhuman or degrading treatment".

- However, the Supreme Court did not question the relevance of the techniques themselves, and permitted their use if the accused consented to be tested.

How is it different from the 'lie detector' or the polygraph test?

⊚ A BEOSP procedure ideally requires no question-answer session to be conducted during the test, as opposed to the polygraph "lie detector" test that maps physiological outputs of the individual in question - like perspiration, blood pressure, pulse rate, and pupil response.

⊚ In the BEOSP test, the individual is simply presented with the crime events/scenarios, following which the subject's brain is analysed to verify if the encoded information is stored as experiential knowledge, which would mean that the subjects had experienced the sequence of events first-hand and not absorbed them as a secondary source during the recounting.

⊚ This way, experts say, the results are more credible since it is difficult to tamper with neuroscientific mappings as opposed to physiological responses which can be controlled and even potentially be faked with enough training of the mind.

Does it violate human rights?

- Brain fingerprinting being a non invasive forensic technique uses electroencephalography (EEG) to determine whether information about the crime is stored in the subject's brain, it does not violate human rights as the suspect takes the test in the comfort of an air-conditioned room sitting in front of a computer where no third degree is ever necessary.

- Brain fingerprinting is a cool tool which can go a long way in enhancing police image by diminishing police brutality and torture during the investigation with a concomitant reduction in custodial deaths.

- Tamil Nadu is yet to acquire brain fingerprinting technology. States like Karnataka, Maharashtra, Gujarat etc have installed brain fingerprinting technology for police investigation purposes.

What are the limitations of the technology?

- Brain fingerprinting detects information-processing brain responses that reveal what information is stored in the subject's brain. It does not detect how that information got there, be it a witness or a perpetrator.

- Brain fingerprinting detects only information, and not intent.

- Brain fingerprinting is not applicable for general screening.

- Brain fingerprinting does not detect lies. It simply detects information.

- Just as all witness testimony depends on the memory of the witness, brain fingerprinting depends on the memory of the subject.

- Like all forensic science techniques, brain fingerprinting depends on the evidence-gathering process which lies outside the realm of science to provide the evidence to be scientifically tested.

- Brain fingerprinting is not a substitute for effective investigation on the part of the investigator or for common sense and good judgment on the part of the judge and jury.

⊙ CONCLUSION

Today, Brain fingerprinting is not only a great investigation method but also serves in medical and other fields. Brain fingerprinting could provide some valuable information in the higher rates of criminal cases and also the higher rates of complexities of the cases. In the coming times, brain fingerprinting is expected to hold an important part in justice and defense, adding to the growth of regional market.

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COVID-19 VACCINE RESEARCH RAISES ETHICAL ISSUES

CONTEXT

- **Vaccine developer company Serum Institute, India said the covidshield vaccine will not be released for mass unless it is proven immunogenic and safe.**

- **The brief summarises the ethical issues that may emerge from the current directions in COVID 19 vaccine research and development during the pandemic.**

◉ BACKGROUND

- A 40-year-old Chennai-based business consultant, who was a volunteer for the third phase of the vaccine trial conducted by Pune-based Serum Institute of India (SII), has sought ₹5 crore compensation, for allegedly suffering serious **neurological and psychological symptoms** after taking the dose.

- **The demands:** The participant has sought:

  - ➤ a compensation of ₹5 crore

  - ➤ the testing, manufacturing, and distribution of the vaccine be stopped immediately

- Issuing a statement, Serum denied the allegations and said the vaccine is safe and immunogenic.

- The Drugs Controller General of India (DCGI) and the institutional ethics committee at the implementation site are investigating if the adverse event as claimed to have been suffered by a COVID-19 vaccine trial participant in Chennai are related to the shot administered to him.

◉ ANALYSIS

What is covidshield vaccine?

- Covishield vaccine is being developed from the "master seed" of the University of Oxford and Aglo-Swedish drugmaker AstraZeneca's Covid-19 vaccine trial.

- Pune-based Serum Institute of India (SII), the largest vaccine maker in the world by volume, had committed to producing this vaccine even as the trials at Oxford were in the early stage.

- SII is currently conducting the third phase of human trials in India and hopes to have 100 million doses of this vaccine—which will be given to patients in two doses—by January.

- For the moment, this vaccine is the leading contender in India.

Other important promising vaccines in India

- **Covaxin, Bharat Biotech**: Bharat Biotech claims that this is India's first indigenously developed Covid-19 vaccines**.**

  - ➤ Covaxin is currently the third phase of human trials, with 26,000 participants across 25 hospitals in the country.

  - ➤ It expects the vaccine to be 60% effective, but no data about its trials have yet been shared.

  - ➤ The vaccine rollout is expected in June 2021, after all the safety and regulatory checks.

- **ZyCov-d, Zydus Cadila:** Unlike Covaxin and Covishield, ZyCov-d will be a three-dose Covid-19 vaccine.

  - ➤ Currently, the Ahmedabad-based pharmaceutical company has begun the third phase of human trials with nearly 30,000 participants.

  - ➤ Zydus Cadila also has a non-exclusive agreement with US-based Gilead Sciences to produce remdesivir (pdf), an antiviral drug used in the treatment of Covid-19, in India.

- **Covovax, Serum Institute of India:** SII is also developing the Covovax vaccine against Covid-19 in partnership with US-based biotech company Novavax.

  - ➤ While the third phase of the trial has been delayed, Novovax's tie-up with SII allows it to produce up to 2 billion doses of its vaccine a year, beginning mid-2021.

- **Sputnik V, Dr Reddy's:** The Gam-COVID-vac, or Sputnik V, developed by Russia's Gamaleya Research Institute of Epidemiology and Microbiology has found a partner in Hyderabad-based pharmaceutical major Dr Reddy's.

> ➤ If successful, Dr Reddy's will also have distribution rights for 100 million doses exclusively for India.
> ➤ The RDIF expects the vaccine to be available next month.

How advancement in medicine brings ethical dilemmas?

◉ Every advancement in medicine brings a new set of ethical dilemmas, while a changing world forces us to confront newer challenges.

➤ The invention of ventilators pushed mankind to think about end-of-life decisions and the definition of brain death.

➤ The outbreak of cholera in a congested city nudged us to reconsider urban planning.

◉ The discovery of vaccines has been accompanied by concerns of safety and disclosure during clinical trials, and acceptability, accessibility, and affordability.

◉ Over the years, changing ideas of fairness and equity have been codified into various foundational documents that have generated the guiding principles of **biomedical research and health practice.**

◉ Public health crises like COVID 19 that prompt multilateral bodies, including the WHO, and national bodies that govern public health and research to reformulate guidelines.

◉ But the guidelines often don't cover many issues in between the silos of medical practice, clinical research, and public health.

The ethical questions

Responses to the emergency have raised many ethical issues for the people involved, including public health specialists and policymakers.

◉ Is it ethical to directly give people a vaccine without complete surety?

◉ With clinical trials bypassing accepted norms of research, do doctors and patients have enough data to make the right decision on drugs investigated in Indian clinical trials?

What are the ethical debates related to vaccine regulation?

◉ Vaccinations have long been the subject of various ethical controversies. The key ethical debates related to vaccine regulation, development, and use generally revolve around three following areas:

◉ **Vaccine research and development:** Ethical discussions surround the research and testing of vaccines, including discussions about vaccine development, and study design, population, and trial location.

◉ **Informed consent:** Ethical debates also surround vaccine implementation and delivery, such as those concerning informed consent

◉ **Access issues:** Many vaccine-related ethical debates center on the evidence that access to vaccination depends to some extent on socioeconomic and racial ethnic minority status.

Why only vaccines can bring a ray of hope?

◉ Vaccines are the most important **public health measure** to protect people from COVID-19 worldwide since SARS-CoV-2 is highly contagious and infects populations widely and globally.

◉ Traditionally, vaccine development takes years, even decades: from about 40 years for polio to 5 years for Ebola, most vaccines took 15 years on average.

◉ The trial process for vaccines consists of several steps that need to be conducted systematically and in a measurable stride.

◉ The length of this process is correlated with the nature of the vaccine itself, which is to protect healthy people from being infected by pathogens.

◉ COVID-19 vaccine will be a great leap forward for humankind, but there are several challenges to overcome:

➤ a lack of understanding of the pathogenesis and the predictive role of vaccines in the clinical pathway of persons being infected by SARS-CoV-2

➤ a huge disagreement among experts about how to determine the most immunogenic epitopes and antigens of SARS-CoV-2

➤ the finding that antibody-dependent enhancement (ADE) may contribute to the exaggeration of SARS-CoV-2 disease

➤ the lack of established animal models for COVID-19 vaccine challenge testing, which raises the speculation of using controlled human infection (CHI) as a potential approach

➤ speculation that the duration of protection by an immune response in natural infection is not long enough

Why Indian Covid-19 vaccine trials are doubtful?

- **Trust issues:** Clinical trials in India for drugs to treat COVID-19 lack the rigor needed to make them trustworthy.

- **Small number of participants:** Ideally these trials should be randomised and controlled, as per the World Health Organization. But current Indian trials have a small number of participants and are characterized by poor and biased study design.

- **Not adhering to global practices:** These trials also do not follow the globally accepted good practice of being published in peer-reviewed research journals, for the scrutiny of the scientific fraternity.

- **Poor scrutiny:** There has been poor scrutiny of clinical trials in India where often the emphasis is on cutting costs.

Why ethics is important in pandemics?

- In a pandemic like COVID, ethics need to be considered in every aspect of crisis management, at every stage:

  - immediate steps to contain and prevent
  - medium-term strategies of care and compensation
  - long-term plans for well-being and rehabilitation

- Ethics are the core foundation for any action, by the state and by the individual.

What challenges will India face in its vaccination program?

- **Storage and distribution**: The first major issue will be the storage and distribution of vaccine as vaccines are needed across the country, and not just in a particular region.

- **Lack of infrastructure:** Currently India does not have the proper infrastructure and experience of vaccination of people of all age groups.

- **Low temperature:** The coronavirus vaccine will be needed to be kept at a temperature of -70 degrees Celsius. However, in India, most cold chains operate at temperatures up to -30 degrees Celsius.

- **Rate of infection:** The country currently has a positivity rate of 8%. Also, the rate of spread of infection has not slowed down. Due to this, the number of patients is increasing every day.

⊙ CONCLUDING THOUGHTS

To sum up, the current COVID-19 vaccine research and development raises ethical issues that must be addressed by all stakeholders. Even in the emergency of a pandemic, the urgency of providing an effective COVID-19 vaccine for humankind must be balanced with the exigency of research ethics that must be maintained. In any event, the safety and well-being of research subjects must be protected, especially that of vulnerable subjects.

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SECTION: B
(PRELIMS)

CURRENT AFFAIRS

IDOL OF DEVI ANNAPURNA TO BE RETURNED BY CANADA

◉ **CONTEXT:** **PM Modi has announced that a very old idol of Devi Annapurna that was stolen from a temple in Kashi, Varanasi, about 100 years ago, is being returned by Canada.**

◉ **ABOUT:**
- Annapurna or Annapoorna, from Sanskrit meaning the giver of food and nourishment) is the Hindu goddess of nourishment.
- She is an avatar (form) of Parvati, the wife of Shiva
- Located on the Dashashwamedh Road in Vishwanath Gali, near Kashi Vishwanath temple, the Annapurna Temple worships the Mahagauri form of Durga.

> **The story of Devi Annapurna**
> - As per the popular legend and holy writ, Hindu deity Shiva, negated the importance of food, citing it as a cosmic illusion.
> - Hearing this, his spouse, Devi Parvati, the manifestation of Universal Shakti, got upset.
> - In order to teach Lord Shiva that food is an integral part of life, she made herself invisible to his eyes, and with her vanished all sources of food and nourishment from the earth.
> - Finally, Shiva realised the importance of food; holding a begging bowl in his hands, he begged for food as alms from his spouse Parvati, whose another form is Annapurna (the giver of food and nourishment).

Where is it now?
- The 18th-century idol of Goddess Annapurna was reportedly housed in Canada's MacKenzie Art Gallery all these years.
- This idol was stolen from a temple in Varanasi and smuggled out of the country around 100 years ago somewhere around 1913.

> Over the past few months, the United Kingdom has also returned a couple of ancient statues that belonged to India, such as a 10th century Lord Shiva idol and three ancient idols of Lord Rama, Lakshman, and Sita that had got stolen.

INDIA-VIETNAM TRADE AND INVESTMENT RELATIONS

◉ **CONTEXT:** **Recently, the virtual meet between India's defence minister Rajnath Singh and Vietnamese defence minister General Ngo Xuan Lich took place.**

◉ **ABOUT:** **India-Vietnam**

- The year 2020 marks the 42nd anniversary of India-Vietnam bilateral trade.

- Vietnam and India have shared strong bilateral relations historically, and for the past two decades, trade between the two countries has risen considerably.

- **Bilateral trade:** Over the past two decades, bilateral trade between India and Vietnam has steadily grown from US$200 million in 2000 to US$12.3 billion in the financial year 2019-2020.

- **Exports:** Exports from Vietnam to India include mobile phones, electronic components, machinery, computer technology, natural rubber, chemicals, and coffee.

- **Imports:** Imports from India include meat and fishery products, corn, steel, pharmaceuticals, cotton, and machinery.

Key-takeaways of the meet

- As part of increased defence cooperation, India and Vietnam have agreed on joint training of pilots by the respective Air Forces and training of forces to be deployed in UN Peacekeeping missions.

- Both countries are also looking at collaborating in a number of domains of defense cooperation like shipbuilding, surface and subsurface capacities like submarines at sea.

- New Delhi has already extended defence Lines of Credit worth USD 600 million to strengthen Vietnam's domestic defence manufacturing.

> **ASEAN Defence Ministers' Meeting-Plus (ADMM Plus)**
>
> Vietnam has also invited India for ASEAN Defence Ministers' Meeting-Plus (ADMM Plus) being hosted by Vietnam in December 2020.
>
> - ADMM-Plus is the only official framework of Defense Minister's meetings in the Asia-Pacific Region.
>
> - In addition to the ten countries of ASEAN, eight countries- Australia, China, India, Japan, New Zealand, Republic of Korea, Russia and the USA participate in this framework to promote more practical defense cooperation.

What about Free Trade Agreement?

- The **ASEAN-India Free Trade Area (AIFTA)**, which Vietnam is a part of, was established in 2009 as a result of convergence in interests of all parties in advancing their economic ties across the Asia-Pacific.

- After India announced its decision to opt-out of the Regional Comprehensive Economic Partnership (RCEP), the India-ASEAN FTA is expected to be reviewed to compensate for the potential trade loss.

- What are the major opportunities for Indian companies?

- **Pharmaceutical:** Vietnam's domestic pharmaceutical industry is currently able to meet just 53 percent of the country's demand, representing significant opportunities for Indian investors as India is among the leading global producers of generic medicines.

- **Agriculture:** Vietnam is seeking alternate buyers for its agricultural exports, after the reduction in demand from China due to the pandemic.

- **Tourism:** The tourism industry in Vietnam is a largely untapped market sector for Indian businesses, which is likely to gain strong traction after the pandemic.

- **Supporting industries:** Vietnam is an attractive destination to produce and export due to its assortment of free trade agreements with several countries.

CAN NON RESIDENT INDIANS (NRIS) CAST THEIR VOTE IN INDIA?

⊙ **CONTEXT:**   **The Government is planning to move to introduce Electronically Transmitted Postal Ballot System for NRIs.**

⊙ **ABOUT:**

What is the plan?

- The Election Commission of India's letter to the Law Ministry have proposed to give postal voting rights not proxy voting to NRIs.

- This means the government only needs to amend the Conduct of Election Rules 1961.

- It doesn't require Parliament's approval.

> **The current strength of NRI**
> - As per the United Nations Report (2015), Indian diaspora population is the largest in the world at 16 million people.

The previous attempt

- In 2014, the Election Commission had first taken up the proposal to permit non-resident Indians (NRIs) to cast their votes.

- It had held an all-party consultation to discuss the possible methods to set up a full-proof mechanism to ensure a free-and-fair poll as the NRI voters are concerned.

- Subsequently, the Supreme Court also upheld the rights of the person who are Indian passport holders to be able to more meaningfully participate in the democratic electoral process.

- A bill to extend the facility of proxy voting to overseas Indians had lapsed with the dissolution of the 16th Lok Sabha.

What are the existing norms?

- As per the existing norms, overseas voters would have to be physically present for casting vote.

- An NRI can vote in the constituency in which his/her place of residence, as mentioned in the passport, is located.

- He/she can only vote in person and will have to produce his/her passport in original at the polling station for establishing identity.

- Voting rights for NRIs were introduced only in 2011, through an amendment to the **Representation of the People Act 1950.**

- Practical difficulties and expenses incurred in travelling to India was the reason why a major chunk of the 30 lakh odd NRIs from Kerala have kept off from voting.

- Hence the e-postal ballot facility would be well received by the overseas voters from the state.

> **Primary condition**
> - The primary condition is that he/she should be a citizen of India, absent from the country owing to employment, education etc.

> • He/she must not have acquired citizenship of any other country and are otherwise eligible to be registered as a voter in the address mentioned in his/her passport.

Why NRI support is important for Indian political parties?

- From the perspective of the Indian political parties, this diaspora support is crucial.

- In ideological terms, the NRI community has always been a placeholder for the success of the entrepreneurial Indian who has made it.

- An NRI is seen by many in India as a mark of success and influence. For an influential NRI to back a political party or candidate can become a very strong endorsement.

IFSCA OBTAINS MEMBERSHIP OF INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS (IAIS)

⊙ **CONTEXT:** **In a latest development, the International Financial Services Centres Authority (IFSCA) obtained membership of International Association of Insurance Supervisors (IAIS).**

⊙ **ABOUT:** ### What is IAIS?

- International Association of Insurance Supervisors (IAIS) is a voluntary membership organization of insurance supervisors and regulators from more than 200 jurisdictions, constituting 97% of the world's insurance premiums.

- Established in 1994, the IAIS headquartered in Switzerland

Role and responsibilities

- It is the international standard-setting body responsible for developing and assisting in the implementation of principles, standards and other supporting material for the supervision of the insurance sector.

- The IAIS also provides a forum for Members to share their experiences and understanding of insurance supervision and insurance markets.

- In recognition of its collective expertise, the IAIS is routinely called upon by the G20 leaders and other international standard setting bodies.

Leading member of IAIS

- **United Kingdom**- Financial Conduct Authority (FCA)

- **USA**- National Association of Insurance Commissioners (NIAC)

- **USA-** Federal Insurance Office of the Insurance of the United States Department of Treasury (FIO)

- **Singapore**- Monetary Authority of Singapore (MAS)

- **India**- Insurance Regulatory and Development Authority of India (IRDAI)

Significance of the membership by IFSCA

- **Access to global network:** With this membership IFSCA would have access to IAIS's global network and would be able to exchange ideas and information with other global regulators.

- **Development of global insurance hub**: This would help in developing a vibrant global Insurance hub in IFSC at GIFT City.

- **Connecting IFSC with global insurance institutions:** Currently, 17 leading Insurance entities are operating from GIFT IFSC undertaking offshore Insurance and Reinsurance business.

- This membership would go a long way in connecting IFSC with global insurance institutions and would facilitate IFSCA in joint development of global insurance business with other global centres.

International Financial Services Centres Authority (IFSCA)

- The IFSCA has been established as a unified regulator with a holistic vision in order to promote ease of doing business in IFSC and provide world class regulatory environment.

- The main objective of the IFSCA is

  ➤ to develop a strong global connect

  ➤ to focus on the needs of the Indian economy

  ➤ to serve as an international financial platform for the entire region and the global economy as a whole

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LUCKNOW MUNICIPAL CORPORATION BONDS LIST ON BSE

⊙ **CONTEXT:** The municipal bonds issued by the Lucknow Municipal Corporation have been listed on the Bombay Stock Exchange (BSE).

⊙ **ABOUT:** **What are municipal bonds?**

- Municipal corporations can raise funds through bond issuances, called municipal bonds.

- The debt raised is from investors like pension funds.

- The municipal bodies set aside an amount from their monthly property tax collections for interest and principal repayment.

- Typically, the interest payment is half-yearly. Most of the municipal bond issuances have their own structured repayment pattern.

Municipal corporations

- Municipal corporations are government bodies that typically form the third tier of the government in urban areas after the central and state government.

- They have their own expenditures and sources of revenue.

- Typically, municipal bodies provide services like water, sanitation, sewage and solid waste management. Some bigger municipal bodies also run schools.

- Their source of revenue includes levies like property tax, government grants and fees for the services provided.

Municipal bonds, an emerging trend

- Municipal bonds have gained traction over the last few years with civic bodies raising funds to meet the rising requirements under the flagship **Smart City Mission** and **Atal Mission for Rejuvenation and Urban Transformation (AMRUT)** scheme of the central government.

- In 2017, the central government had announced incentives for municipal bodies who raise funds through these municipal bonds.

> **Other listed municipal bond issuances**
> - Besides Lucknow, some of the other bond issuance that have been listed include those of the municipal bodies of Pune, Indore, Bhopal, Ahmedabad and Hyderabad.

Do these bonds have sovereign guarantee?

- These bonds, like the state development bonds, are not backed by a sovereign guarantee.
- A sovereign guarantee is typically provided by the central government promising debt repayment for a third party in case of a default by the latter.
- Due to this, the interest rates on municipal bonds are also higher than the interest rate on central government securities and State Development Loans (SDLs).

How does listing help?

- Listing of bond issuances makes them more transparent and ensures information flow to investors, Pant said.
- Under the listing conditions, accounts have to be audited half-yearly. This ensures greater reliability.

WORLD MALARIA REPORT 2020

⊙ **CONTEXT:** **India has made considerable progress in reducing its malaria burden, as per the World Malaria Report 2020.**

⊙ **ABOUT:** **Malaria is an acute febrile illness.**

- **Caused by:** Malaria is caused by *Plasmodium* parasites. The parasites are spread to people through the bites of infected female *Anopheles* mosquitoes, called "malaria vectors."
- There are 5 parasite species that cause malaria in humans, and 2 of these species – *P. falciparum* and *P. vivax* – pose the greatest threat.
- **Symptoms:** The first symptoms – fever, headache, and chills – may be mild and difficult to recognize as malaria.
- **Transmission:** In most cases, malaria is transmitted through the bites of female *Anopheles* mosquitoes.
- Key-highlights of the Report
- India is the only high endemic country which has reported a decline of 17.6 per cent in 2019 as compared to 2018 as far as malaria cases are concerned.
- The **Annual Parasitic Incidence (API)** reduced by 27.6 per cent in 2018 as compared to 2017, and by 18.4 per cent in 2019 as compared to 2018. India has sustained API less than one since year 2012.
- India has also contributed to the largest drop in such cases region-wide, from approximately 20 million to about 6 million.
- The percentage drop in the malaria cases was 71.8 per cent and deaths was 73.9 per cent between 2000 to 2019.
- India achieved a reduction of 83.34 per cent in malaria morbidity and 92 per cent in malaria mortality between the year 2000 (20,31,790 cases, 932 deaths) and 2019

(3,38,494 cases, 77 deaths), thereby achieving Goal 6 of the Millennium Development Goals (50-75 per cent decrease in case incidence between 2000 and 2019).

- Government's Malaria elimination efforts
- Malaria elimination efforts were initiated in the country in 2015 and intensified after the launch of the National Framework for Malaria Elimination (NFME) in 2016 by the Ministry of Health and Family Welfare.
- The National Strategic Plan for Malaria Elimination (2017-22) was launched by the health ministry in July, 2017 which laid down strategies for the next five years.

APEX COMMITTEE FOR THE IMPLEMENTATION OF THE PARIS AGREEMENT (AIPA)

⊙ **CONTEXT:** In a latest development, the Government of India has constituted the Apex Committee for the Implementation of the Paris Agreement (AIPA).

⊙ **ABOUT:**
- The AIPA also has the responsibility of regularly communicating and reporting the NDCs to the United Nations Framework Convention on Climate Change (UNFCCC).
- India is a party to the United Nations Framework Convention on Climate Change (UNFCCC)
- **Composition:** The AIPA committee constitutes a Chairperson, Vice Chairperson and 15 other members from different ministries:
- **Chairperson:** Secretary, Union Ministry of Environment, Forest and Climate Change (MoEFCC)
- **Vice Chairperson:** Additional secretary, MoEFCC
- The AIPA will also act as a national authority for the regulation of carbon markets in India under the Article 6.2, Article 6.4 and Article 6.8 of the Paris Agreement.

What is Paris Agreement?

- The Paris Agreement is a landmark environmental accord that was adopted by nearly every nation in 2015 to address climate change and its negative impacts.
- The deal aims to substantially reduce global greenhouse gas emissions in an effort to limit the global temperature increase in this century to 2 degrees Celsius above preindustrial levels, while pursuing means to limit the increase to 1.5 degrees.
- The Paris Agreement requires all Parties to put forward their best efforts through "nationally determined contributions" (NDCs) and to strengthen these efforts in the years ahead.

Nationally Determined Contributions

- NDCs are the accounts of the voluntary efforts to be made by countries that are a part of the Paris Agreement, to reduce greenhouse gas emissions and mitigate the impacts of anthropogenic climate change.
- The three quantitative goals in the Indian NDCs are:
  - ➤ A 33-35 per cent reduction in the gross domestic product emissions intensity by 2030 from 2005 levels
  - ➤ A 40 per cent share of non-fossil fuel based electricity by 2030
  - ➤ Creating a carbon sink of 2.5-3 billion tonnes of carbon dioxide through afforestation programmes

- Apart from these, there are five other non-quantitive goals in the Indian NDCs.
- The NDCs are to be implemented in the post-2020 period.
- India had submitted its NDCs in 2015.
- Now, the AIPA, with its 17 members, has the responsibility of formulating policies and programmes for implementing them.

What is the purpose of the Committee?

- To ensure a coordinated response on climate change matters that protects the country's interests
- To ensure that India is on track towards meeting its climate change obligations under the Paris Agreement including its submitted Nationally Determined Contributions (NDCs)".
- To define the responsibilities of the government ministries that would be crucial in achieving the country's climate change mitigation and adaptation goals and submit a report every six months.
- To develop policies and programmes, if required, to make India's domestic climate actions compliant with its international obligations.

SCENTED PRODUCTS ADD TO AIR POLLUTION

⊙ **CONTEXT:**   **Use of hair sprays, hand sanitisers etc emit the same amount of chemical vapours as petroleum from vehicles, even though 15 times more petroleum is burned as fuel**

⊙ **ABOUT:**   **What is the concern?**

- The use of scented goods (including things such as perfumes, hair sprays, air fresheners, and paints) emit the same amount of chemical vapours as petroleum from vehicles, even though 15 times more petroleum is burned as fuel.
- Each spritz of perfume contains volatile organic compounds (VOCs).
- Air pollution affects around the 90 per cent of the world, according to the World Health Organization.
- This burdens the consumer with a huge responsibility in choosing the best for themselves as well as the environment.
- Products emitting the least amount of VOCs are a need of the hour. Its effect could be severally reduced by using indoor and outdoor plants.

What are volatile organic compounds?

- Volatile organic compounds (VOCs) are emitted as gases from certain solids or liquids.
- VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects.
- Concentrations of many VOCs are consistently higher indoors (up to 10 times higher) than outdoors.
- VOCs are emitted by a wide array of products numbering in the thousands.
- These chemical vapours, known as volatile organic compounds, react with sunlight to form ozone pollution, and, react with other chemicals in the atmosphere to form fine particulates in the air.

- **Organic chemicals:** Organic chemicals are widely used as ingredients in household products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products.
  - ➤ Fuels are made up of organic chemicals. All these products can release organic compounds while you are using them, and to some degree, when they are stored.

The process

- After spray, the VOCs respond to ozone contamination while reacting with sunlight and other chemicals in the atmosphere.

- Even though drivers can use gallons of gasoline each week, it's stored in an airtight tank.

- It is burned for energy and converted mostly to carbon dioxide.

- The carbon dioxide emissions are not smog-forming VOCs, though they are a major driver of human-induced climate change

AI & ROBOTICS TECHNOLOGIES PARK (ARTPARK) SET UP IN BENGALURU

⊙ **CONTEXT:** The Indian Institute of Science (IISc) Bangalore has set up an Artificial Intelligence and Robotics Technologies Park (ARTPARK).

⊙ **ABOUT:**

What is ARTPARK?

- ARTPARK, is a unique not-for-profit foundation established by Indian Institute of Science (IISc), Bengaluru with support from AI Foundry in a public-private model.

- With seed funding of Rs. 170 Cr ($22mn) from Department of Science & Technology(DST), Govt. of India, under the **National Mission on Inter-disciplinary Cyber-Physical Systems (NM-ICPS),** it will bring about collaborative consortium of partners from industry, academia and government bodies.

- This will lead to cutting edge innovations in terms of new technologies, standards, products, services and intellectual properties.

What ARTPARK will do?

- ARTPARK will develop AI & Robotics facilities to support technology innovations as well as capacity building through advanced skills training of students and professionals in these areas.

- Some of these facilities will be key enablers for whole new sets of technologies, products and services.

- **DataSetu**: It will develop **DataSetu** - that will enable confidentiality and privacy-preserving framework to share data and run analytics spurring the data-sharing ecosystem and create a data marketplace, boosting AI applications and solutions.

- **BhashaSetu:** One such service will be BhashaSetu - that will enable real-time Indic language translation, both of speech to speech and speech to text.

- This will further unlock the economic potential of the country, and enable all Indian citizens to equitably participate in the economic progress, regardless of their language.

Significance of the development

- **Promoting innovation:** ARTPARK will promote technology innovations in AI (Artificial Intelligence) & Robotics

- **Positive societal impact:** The development will lead to societal impact by executing ambitious mission mode R&D projects in healthcare, education, mobility, infrastructure, agriculture, retail and cyber-security focusing on problems unique to India.

- **Advanced kill development:** This premier research translation park will help students and professionals in capacity building through advanced skills training.

HAL DELIVERS BIGGEST CRYOGENIC PROPELLANT TANK TO ISRO

⊙ **CONTEXT:**   **The Hindustan Aeronautics Limited (HAL) has delivered the biggest cryogenic propellant tank (C32 LH2) ever formed by the company to the Indian Space Research Organisation (ISRO).**

⊙ **ABOUT:**
- The C32-LH2 tank is a developmental cryogenic propellant tank of aluminium alloy designed for improving the payload capability of GSLV MK-III launching vehicle.

- The four meter diametric tank is of 8 meter length to load 5755 kg propellant in the 89 cubic meter volume.

- Total length of weld carried out in the tank was 115 meter at different stages to the quality requirement of 100 percent tests on radiography, Die penetrant check and Leak proof.

> **About Hindustan Aeronautics Limited (HAL)**
> - Hindustan Aeronautics Limited is an Indian state-owned aerospace and defence company headquartered in Bangalore, India.
> - Founded in 1940, it is governed under the management of the Indian Ministry of Defence.
> - HAL as a strategic reliable partner, has been associating with ISRO for the prestigious space programs since last five decades.
> - HAL has supplied critical structures, tankages, satellite structures for the PSLV, GSLV-MkII and GSLV-MkIII launch vehicle.
> - Various new projects like PS2/GS2 integration, Semi-Cryo structure fabrication and manufacture of cryo and semi cryo engines are being taken up at HAL, for which setting up of necessary infrastructure and facilities is nearing completion.

Cryogenic propellant

- A cryogenic engine/ cryogenic stage is the last stage of space launch vehicles which makes use of Cryogenics.

- A cryogenic engine provides more force with each kilogram of cryogenic propellant it uses compared to other propellants, such as solid and liquid propellant rocket engines and is more efficient.

- Cryogenic engine makes use of Liquid Oxygen (LOX) and Liquid Hydrogen (LH2) as propellants which liquefy at -183 deg C and -253 deg C respectively.

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GS SCORE
An Institute for Civil Services

CSE RESULTS

TOP 100 ALL INDIA RANKING CSE 2019

3, 6, 10, 11, 16, 17, 21, 22, 28, 30, 33, 38, 39, 42, 44, 46, 53, 54, 59, 66, 69, 70, 72, 77, 78, 80, 82, 84, 86, 87, 94, 97, 98

SUCCESS IS A PRACTICE WE DO!

TOP 100 ALL INDIA RANKING CSE 2018

2, 3, 5, 7, 27, 36, 37, 40, 44, 49, 51, 52, 56, 58, 62, 74, 81, 89, 92, 94, 98, 100

TOP 100 ALL INDIA RANKING CSE 2017

3, 10, 19, 31, 33, 35, 40, 41, 44, 45, 48, 97, 100, 54, 57, 63, 64, 68, 71, 75, 77, 80, 83, 93

TOP 100 ALL INDIA RANKING CSE 2016

5, 6, 9, 15, 26, 29, 43, 48, 53, 59, 67

TOP 100 ALL INDIA RANKING CSE 2015

9, 13, 26, 34, 39, 75, 77, 78, 89, 91