

CURRENT AFFAIRS

Month of
DECEMBER-2020



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CURRENT AFFAIRS ANALYST

WEEK- 1 (DECEMBER, 2020)

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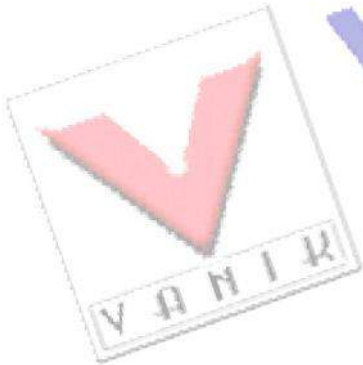
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SECTION: A
(MAINS)
CURRENT AFFAIRS



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THE DIVERSE NATURE OF INDIAN SOCIETY

CONTEXT

Indian being a land of diverse culture and heritage does have a very complex society. However, the diverse nature of Indian society has its own dark sides.

◎ BACKGROUND

- œ India is scaling new heights of development while many voices are going unheard; these are the voices of social problems.
- œ These are the areas which do not become obvious but are leading to pulling India backwards in its climb to success.
- œ The fact that needs to be considered is how much ever a nation is developed if it doesn't solve its internal crisis; the development goes down the drain.
- œ Social issues in India are one of the main factors to be considered which is causing a ridge between developed and developing India.

- > This had led to an urgent need to teach our next generation to put a stop to this unethical practice.

Law against Corruption

- . Prevention of Corruption Act, 1988
- . Foreign Contribution Regulation Act, 2002
- . Right to Information Act, 2005
- . Central Vigilance Commission Act, 2003
- . Lokpal and Lokayukta Act, 2013
- . Companies Act, 2013
- . Prevention of Money Laundering Act, 2002
- . The Fugitive Economic Offenders Act, 2018

◎ ANALYSIS

What are the major social issues present in today's society?

Poverty

- œ Type of social issue: Social inequality, social stratification and social disorganization
- œ Poverty is considered as the main reason leading to the birth of various other social issues in India and India is home to the world's largest slum pocket.
- œ According to the 2013 estimation, by Indian Planning Commission 269 million people i.e. 22% of the population lives under the poverty line.
- œ The abolition of this problem requires imparting education to save more generations from the quicksand of poverty.

◎ CORRUPTION

- œ Types of social issues: Economic issues
- œ India being a democratic nation has its downfall because of them under the table practice.
- œ This can be seen as a practice by a person at a smaller position to a person as highly positioned as a minister.
 - > Scams like the Colgate and 2 G scam or the cases like the one of Vijay Mallya have punctured the wheels of the economy.

Terrorism

- œ Types of social issues: Education deficiency
- œ Terrorism is backstabbing the nation through its wrath from the time of its partition.
- œ Some of the examples could be hideous attacks that took place on 26/11 and the recent Uri attack etc. These attacks are inclusive of internal terrorism practised through sleeper cells also.
- œ Such attacks have not halted, though many surgical strikes and peace talks are done by India.

Communalism

- œ Types of social issues: Social inequality, Social stratification and Social disorganization:-
- œ India is home to 1,028,610,328 communities has additional challenges to maintain peace among them.
- œ The example could be the like the recent ones inflicted from Babri masjid demolition.
- œ This point of time to prevent them the Government needs to take strict actions against political provoking them for votes.
- œ This further needs nurturance of education for peace and harmony to younger generations.

Illiteracy

- œ Types of social issues: Education inequality and social inequality

- œ State-wise Kerala boasts 93.91% but more focus should be on states like Bihar with 68.8% literacy rate; however, India's literacy rate in India has increased.
- œ There should be a focus on such regions with high illiteracy rate for India's all-round progress and as education has become the biggest weapon in present times.
- œ Education should be motivated by the Government or at the individual level by joining hands with NGO to teach underprivileged sections.

Violence against Women

- œ Types of social issues: crime and the justice system
- œ There is a new black spot emerging over India as tourists globally warned about the rape history of India.
- œ This range with an array of brutal crimes is it inside the house or outside.
- œ The Delhi Nirbhaya case shocked the country and now the capital of the country is considered rape capital.
- œ The reason being the estimations of rapes are surprising and increasing. This has led to an urgent need for initiatives by Government, education to younger ones and Indian society as a whole to stand against it.

What is the role of migration in building of nations?

- œ There is a huge role of migrations in building of nations by diverse communities through alliances at multiple levels.
- œ Talking of India, diversity has been the hall mark of this society from long. Christianity entered India, right in first century.
- œ Already different religious traditions, Jainism Buddhism were present here.
- œ Islam came in 7-8 Century from Malabar Coast through Arab traders and later many of those who were victims of Varna-Caste system embraced Islam through Sufi saints.

- œ The Muslim invaders coming from North West were more for reasons related to power and wealth.
- œ Buddhism had spread in various South East Asian countries. Indians also migrated to different parts of the World mostly for economic purpose, employment or greener pastures.
- œ UK has abundant number of them, Similarly America and Canada, now Australia has lot of migrants from India.
- œ Earlier many Indians did migrate to Caribbean's, Mauritius, and Ceylon among other places.

The positive side of diversity

- œ India's diversity has been multi-factorial and at different layers. Different communities have been living and celebrating this diversity. Religious festivals have been one of the strong platforms for community interactions.
- œ In the area of religions Bhakti and Sufi traditions have upheld the diversity.
- œ While 'melting pot model' of cultural integration does apply partly, the main expression of diversity has been a 'salad bowl' model where different components are visible and still are thick part of the whole.
- œ The same diversity formed the base of freedom movement of India, which gave space to each of these components of diversity.

Concluding thoughts

Since decades, India is countering issues like poverty, illiteracy, child marriage, caste system, gender inequality and endless to count further. But with the changing scenario and thought process of the society, many more new problems have made their way into our lives. The society needs to take up these issues seriously before it becomes too late to act upon. Indian Government along with citizens should drive effective changes that will change the dream of developed India into reality sooner.

UAPA AND THE GROWING CRISIS OF JUDICIAL CREDIBILITY IN INDIA

CONTEXT

- The Democracy Report 2020 by V-Dem Institute created quite a storm recently in India’s policy circles. The report claimed that the world’s largest democracy is on the verge of losing its status as a democracy.
- However, much attention is required on the widespread use of the anti-terror law — the Unlawful Activities (Prevention) Act, 1967 or UAPA — in a growing number of instances.

◎ BACKGROUND

- œ India has a 70-year history of democracy, tolerance, and rule of law, and a successful record of managing its patchwork of cultures and religions.
- œ In recent months, however, this situation has been changing.
- œ A per the 2020 ‘Democracy Report’ by the Sweden-based V-Dem Institute, India is on the verge of losing its status as a democracy due to the severely shrinking of space for the media, civil society.
 - > Set up in 2014, V-Dem is an independent research institute based at the University of Gothenburg and has published a data-heavy worldwide democracy report each year since 2017.
 - > As the name suggests, these reports look at the status of democracies in countries around the world.
- œ The institute calls itself the world’s largest data collection project on democracy.
- œ Noting India’s rapid slide into an autocracy, the Sweden-based report, which produces the most comprehensive analyses on the health of democracy across the world, cited trends of dramatic erosion of basic civil liberties, particularly media freedom and suppression of the freedoms

of free speech and dissent as the key reasons for this major dip.

◎ ANALYSIS

What does the Report say?

- œ The 2020 report, titled ‘Autocratisation Surges – Resistance Grows’, begins with figures that point to the fact that globally, the spirit of democracy is on the decline.
- œ For the first time since 2001, autocracies are in the majority and comprise 92 countries that are home to 54% of the global population.
- œ Major G20 nations and all regions of the world are now part of the “third wave of autocratisation” which is affecting major economies with sizeable populations, like India, Brazil, the US, and Turkey.
- œ India has continued on a path of steep decline, to the extent, it has almost lost its status as a democracy.
- œ The report lists the top 10 regressing countries by the magnitude of change on the LDI over the past 10 years.
- œ As may be seen in the table below, India is still listed as an electoral democracy. But the report warns that the signs of deterioration are evident.

	CHANGE	LDI 2009	LDI 2019	REGIME TYPE 2009	REGIME TYPE 2019
Hungary	-0.36	0.76	0.40	Liberal Democracy	Electoral Autocracy
Turkey	-0.36	0.46	0.10	Electoral Democracy	Electoral Autocracy
Poland	-0.33	0.83	0.50	Liberal Democracy	Electoral Democracy
Serbia	-0.27	0.53	0.25	Liberal Democracy	Electoral Autocracy
Brazil	-0.25	0.76	0.51	Electoral Democracy	Electoral Democracy
India	-0.19	0.55	0.36	Electoral Democracy	Electoral Democracy
Mali	-0.17	0.48	0.31	Electoral Democracy	Electoral Autocracy
Thailand	-0.16	0.32	0.15	Electoral Autocracy	Closed Autocracy
Nicaragua	-0.16	0.22	0.06	Electoral Autocracy	Electoral Autocracy
Zambia	-0.15	0.42	0.27	Electoral Democracy	Electoral Autocracy

What are the major concerns?

- œ The UAPA is largely an anti-terror law that is supposed to be applied only in rare instances.
- œ However, the experience with the UAPA over the years suggests that it is being indiscriminately used by the government — both Union and states — at varying degrees.
- œ Going by the statistics of the National Crime Records Bureau (NCRB), the year 2019 saw the biggest jump in cases filed under the UAPA.
- œ As many as 1,226 people have been arrested under the controversial anti-terror law, a 33% increase from 2016.
- œ In 2019 itself, as many as 11 percent of cases were closed by the police for want of evidence.
- œ A very low conviction rate indicates that the UAPA is indiscriminately used by the police to harass and intimidate.
- œ The last two years, in particular, have witnessed a sharp rise in the arrests of several prominent human rights defenders, civil society leaders, agitating leaders and even protesting students under the UAPA and sedition laws.

What are the problems with the UAPA?

- œ While the last few years have witnessed a sharp spike in UAPA cases, the UAPA's misuse has been going on for much longer and across all regimes and government types (Centre and states).
- œ The UAPA was enacted in 1967 to promote and ensure national integration.
- œ In 2004, after the notorious and highly abused Prevention of Terrorism Act, 2002 (POTA) was repealed by the Congress-led United Progressive Alliance (UPA) government, in its place the UAPA was amended to include provisions to counter terrorism and other unlawful activities.
- œ The POTA, which was enacted in 2001 in the aftermath of the 11 September 2001 terrorist attacks on the United States, had retained many provisions of TADA (Terrorist and Disruptive Activities Prevention Act), one of the most draconian laws that India ever enacted.
- œ Similar to previous laws, POTA defined "terrorist" and "terrorist activities" rather vaguely. This allowed for indiscriminate applications by police and security agencies.
- œ While TADA and POTA were repealed after massive civil society outcries and strong judicial rebukes to the governments, the governments have found it convenient to enlarge this once-moribund law (the UAPA) to cover many things including some of the key features of the repealed POTA.
- œ For instance, the government repealed POTA in 2004, amended the 1967 UAPA to make it an omnibus preventive detention law.

- œ UAPA expanded the definition of 'unlawful activity' to include 'terrorist act' and 'terrorist organization', which were key derivatives of POTA.
- œ After the 2008 terror attack in Mumbai, the government added more provisions similar to POTA and TADA regarding the maximum period a person can be held in police custody and incarcerated without a charge sheet, and it also incorporated restrictions on bail into the UAPA.
- œ In July 2019, the government further amended the Act giving the State and its security agencies far more expansive teeth.
- œ While the definition of a 'terrorist' remains vague in this law, the amendments in 2019 have allowed the Central government wider power to designate a person as a "terrorist" without a trial.
- œ Besides, individuals can be named as terrorists even though they may not have any connection or affiliation with the 36 terrorist organizations listed in the First Schedule of the UAPA.

What about the 'Judicial mechanism' in UAPA?

- œ What is particularly worrisome is that the UAPA does not provide a judicial mechanism for either individuals or organizations listed as terrorists to challenge such a designation.
- œ For denotification, an application is to be made to the Central Government. To conclude such an application, a Review Committee is set up.
- œ The Chairperson of this Committee, though a High Court Judge, is appointed by the Central Government.
- œ Thus, even the review procedures that are supposed to be part of a free and fair trial are mere extensions of biased institutions — institutions that are responsible for the arrest in the first place.
- œ On the whole, the major problem with the UAPA is that it deems an individual to be a terrorist without a trial and sees them as someone who cannot be granted bail because they pose a threat to society.

An indifferent judiciary

- œ The judiciary, which is the most critical institution to protect and provide timely redressal of violation of fundamental rights, has come in for a lot of flak in recent times over cases under UAPA.
- œ Several retired judges of the Supreme Court have voiced their dismay at the appalling indifference of the higher courts to brazen violations of civil liberties under a new UAPA regime. And there is a sound basis for such interpretation against the judiciary.

- œ The Supreme Court, high courts, and lower courts have shown little to no urgency to grant bail, even in cases that have made no progress in terms of police investigation or prosecution.
- œ The Supreme Court, which had delivered a major judgment providing remedies to indiscriminate arrests and people casually being designated as 'terrorists' in the 2011 Sri Indra Das vs State of Assam took an opposite turn in the 2019 National Investigation Agency vs Zahoor Ahmad Shah Watali.
- œ Sri Indra Das vs State of Assam: In the former case, the Supreme Court held that Section 3(5) of TADA and Section 10 of UAPA, which incriminate mere members of a banned organization, cannot be read literally and must be read along with Article 21 of the Constitution, and by doing so must be read down.
 - > By interpretation, the highest court held that mere membership of a banned organization will not automatically incriminate a person unless he/she resorts to violence or incites people to imminent violence.
 - > In short, the concept of 'guilty by association' was nullified by the court in the Sri Indra Das case.
- œ National Investigation Agency vs Zahoor Ahmad Shah Watali: Yet, the same court took a complete U-turn in the 2019 judgment by creating a new doctrine that effectively allows the state/police to keep an accused in custody throughout the trial.
- œ Delivering the verdict on bail applications, justices Khanwilkar and Rastogi declared that in UAPA cases, the court must presume every allegation made in the FIR to be correct.
- œ Further, being granted bail would be on the condition of the accused producing materials or evidence that can disprove the allegations.
- œ Thus, the entire burden to prove innocence rests on the accused. In doing so, the court has essentially excluded the question of admissibility of evidence at the stage of bail.
- œ This judgment of the Supreme Court is having a chilling effect on bail being granted by lower courts to the accused individuals.

How Lower Courts are dealing with UAPA cases?

- œ The lower courts are showing extra caution while granting bail in UAPA cases.
- œ The best illustration is the reluctance of the Bombay High Court to grant bail to those arrested over the Elgar Parishad-Bhima Koregaon case, after having spent more than two years in jail.
- œ The Maharashtra police and the National Investigation Agency (NIA) have taken one extension after another on the pretext of finding new evidence, yet the Bombay High Court is still not able to take a call on bail for the accused.
- œ Even those with serious medical conditions, such as Varavara Rao and Sudha Bharadwaja, have not been granted bail with the court citing one procedure or the other to deny them bail.
- œ Whereas, those who move writ petitions under Article 32 of the Constitution have been in for a rude shock with the Chief Justice of India, in the Siddique Kappan case, admitting the court's policy of discouraging Article 32 petitions.
- œ Incidentally, Article 32 is a Fundamental Right, which B.R. Ambedkar once claimed as the "heart and soul" of the constitution.

CONCLUSION

To conclude, India's democracy, as indicated by multiple global reports and studies, is in deep crisis. With a strong executive eyeing to dominate every major democratic institution and control major narratives (in the absence of an effective political opposition) in the young republic, an independent and effective judiciary is the last hope to provide a check on executive excesses. A growing trend of indiscriminate use of draconian anti-terror laws by governments to silence dissenting voices and the judicial indifference to these gross violations of freedom is fast eroding India's democratic credentials. Time is running out for India and the judiciary in particular to restore its hard-earned credibility.

2020 AFGHANISTAN CONFERENCE : A REINFORCED COMMITMENT

CONTEXT

As a quadrennial ministerial pledging conference, the 2020 Afghanistan Conference, co-hosted by the Government of Islamic Republic of Afghanistan, the Government of Finland, and the United Nations took place virtually because of the serious Covid-19 situation in Switzerland this year, the whole discourse drew out some key takeaways worth considering.

◎ BACKGROUND

- œ As a quadrennial ministerial pledging conference, the 2020 Afghanistan Conference, co-hosted by the Government of Islamic Republic of Afghanistan, the Government of Finland, and the United Nations took place virtually.
- œ The conference took place with the theme "Peace, Prosperity, and Self-Reliance" amid fluidity and uncertainty in global geopolitics.
- œ While the contours of the talks remained more or less the same, the participation of representatives from 70 countries and 30 organizations discernibly highlighted the importance of the event.
- œ Furthermore, the severe financial woes that the world is witnessing because of the pandemic didn't deter the global community to come forward and pledge over \$13 billion as part of their continued support to Afghanistan.
- œ This also signifies that despite all the inroads that Afghanistan encountered, it successfully forged a global consensus.

Top donors

- . United States: The US, which invaded Afghanistan in 2001 to pursue the Taliban, has contributed roughly \$800m a year in civilian aid in recent years.
- . Germany: Another top donor, Germany, pledged 430 million euros (\$511m) in 2021 and signalled it would keep contributing until 2024 but also stressed that progress towards ending almost 20 years of war was needed.
- . European Union: The European Union pledged 1.2 billion euros (\$1.43bn) over four years on Tuesday but emphasised aid was conditional.
- . United Kingdom: The UK said it would pledge \$227m in annual civilian and food aid.
- . France: France pledged 88 million euros (\$104.5m) and Canada 270 million Canadian dollars (\$206.7m).
- . India: India announced about 150 projects worth \$80 million (about Rs 592 crore).

◎ ANALYSIS

What gains are made by Afghanistan over the period of time?

- œ Since 2001, Afghanistan has traversed a long way in terms of broadening its democratic base with increasing independent media, active civil societies, skilled demographic dividend and empowered women contributing in every aspect of country's polity.
- œ The idea of the republic and the constitutional democracy have manifested in vigorously working government bodies and various social institutions.
- œ The trajectory of Afghanistan's progress in the last 19 years can be better comprehended by making an analogy with one of the prominent stakeholders in this year's conference: Finland.
 - > As a country which has one of the best World Human Capitals and which ranked first on the World Happiness Report consecutively in the last three years is also famous for one other reason: women empowerment.
 - > The Finnish Parliament is made up of 47 percent of women MPs and has set a new yardstick for the entire world for gender equality.
- œ Women empowerment: In comparison, Afghan parliament has around 27 percent of women MPs. Besides, women's presence is ubiquitous in the country, ranging from media, education, civil society, governance, entrepreneurship and even the Afghan National Defense and Security Forces (ANDSF).
- œ The orientation of this accomplishment is self-evident and justifies the need to continuously fortify the gains achieved over the past two decades.
- œ Education: Further, the educated youth have been continuously strengthening the checks-and-balances in the administrative machinery of the country, improving the democratic set-up.
- œ Economic development: In terms of economic developments, several outcomes have been observed since 2001 that include expanded access

to water, sanitation and electricity, education, and health services.

- œ Today, Afghanistan's government is perpetually diversifying the economic and financial base of the country to change the region's roundabout where ideas, money and people will flow.
- œ Strong defence system: Besides, the ANDSF that is bravely defending the country at various forefronts have incorporated professional tactical training and weaponry in its cache.

Issues in the region

- œ Political uncertainty: At the same time, Afghanistan continues to experience insecurity and political uncertainty.
- œ Economic slowdown: Afghanistan's economy has been hard-hit by the outbreak of the COVID-19 virus, due to negative impacts on consumption, exports, and remittances.
- œ Poverty: Poverty is expected to remain high, driven by weak labor demand and security-related constraints on service delivery.
- œ Conflict: Conflict is ongoing, and 2019 was the sixth year in a row when civilian casualties in Afghanistan exceeded 10,000.
- œ Displacement crisis: The displacement crisis persists, driven by intensified government and Taliban operations in the context of political negotiations.

Why Afghanistan is important for India?

- œ Geo-economically Afghanistan is very important for India, the foreign trade policy of India and the International North-South Transport Corridor (INSTC), hosts a tremendous promise that could help the country develop economic and strategic importance in Eurasia and Central Asia.
- œ The INSTC has particular economic and strategic relevance to India given the increasing regional ambitions of China through its one belt one road initiative. Several MOUs have been signed between India and Afghanistan. Indian investors are interested in the "virgin markets" of Afghanistan.
- œ Afghanistan also represents investment potential for Indian companies in several sectors. Indian private sectors are seen as a driver towards prosperity in Afghanistan.
- œ The other important project is the building of Sister-City relations between major Indian cities and Afghan counterparts. The Sister-City relations will be connected through tourism, faculty exchange programs as well as through private sector investment. Several invitations have been extended to India to invest in Afghanistan. India has been invited by Afghanistan to join Pakistan, Afghanistan, Tajikistan Trade and Transit Agreement a very significant link wherein Afghanistan would

act as a land bridge connecting South Asia and central Asia

- œ High-value resources: Among the bigger bonanzas that Afghanistan promises are its deposits of energy raw materials and high-value mineral deposits. A substantial concentration of such resources is along Afghanistan's borders with Tajikistan, Uzbekistan, Iran, and Turkmenistan. Further, most Afghan resources remain untapped, so far.

What is India's role in Afghanistan?

- œ India since the fall of the Taliban in 2001, has emerged as a vital partner of Kabul, and helped in capacity building and built a number of infrastructure projects as well, which includes, the India Afghanistan friendship dam in Herat, the Afghan Parliament in Kabul. India's contribution in Afghanistan is always acknowledged and hailed by the Afghan people.
- œ Investment: Since 2001, India has invested over \$US3 billion in Afghanistan, supporting almost every sector of Afghan society, polity, and economy.
- œ Infrastructure: Continuing the legacy of this lionized bilateral bonhomie between the two countries, India in the current Geneva conference yet again pledged US\$286 million for the construction of Shatoot Dam that will provide safe drinking water to 2 million Kabul residents and \$80 million for 150 High-Impact Community Development Projects.
- œ Resources for programs: Further, India has announced to continue providing resources for the existing programs in the country under the strategic partnership agreement, including 2,500 annual scholarships awarded to Afghan students by the Indian Council for Cultural Relations (ICCR).
- œ Peace process: For peace efforts, India has always been steadfast in backing up the national narrative of the government of Afghanistan, where it time and again called for an 'Afghan-led, Afghan-owned, and Afghan-controlled' peace process.
- œ Such initiatives will bolster the domestic Afghan narrative for peace, while strengthening the vital institutions and improving the essential service delivery in the country.

US-Taliban Peace Deal

- . India has been keenly following the evolving political situation after the US signed a peace deal with the Taliban in February.
- . The deal provided for the withdrawal of American troops from Afghanistan, effectively drawing curtains to Washington's 18-year war with Taliban in the country.

- Besides, the exchange of Taliban prisoners with Afghan security forces and the removal of sanctions on the Taliban was also agreed upon.

India's current development programmes

- œ India's current development programmes in Afghanistan are centered around five pillars:
 - > large infrastructure projects
 - > human resource development and capacity building
 - > humanitarian assistance
 - > high-impact community development projects
 - > enhancing trade and investment through air and land connectivity
- œ Large infrastructure projects completed include construction of 218 km road from Delaram to Zaranj (on Iranian border) which provides alternative connectivity for Afghanistan through Iran; Salma dam; and the Afghan Parliament building which was inaugurated in 2015.
- œ More than 65,000 Afghan students have studied in India under various scholarship programmes and 15,000 students are presently studying here; 3,000 scholarships have so far been granted to young Afghan women to pursue higher studies in India.

Is India finally shedding the hesitations of history?

- œ While India did not invest in Afghanistan during the Taliban years from 1996 to 2001, the government's decision now to invest in Afghanistan's future, where Taliban is set to play a dominant role, is being seen as a major departure from the past.
- œ It signals that India is finally shedding the hesitations of history.
- œ New Delhi has had a bitter experience with the Taliban.
- œ Now, with their return after the US exiting Afghanistan, South Block is quickly trying to adapt to the changed circumstances and reach out to the Taliban.

Issues raised by India

- India has invested heavily in peace and development in Afghanistan. It strongly believe that the gains of the last two decades must be preserved and the interests of minorities, women and vulnerable sections must be ensured.

- This is one of India's red-lines in the wake of the Taliban's rise in Afghanistan, as the Sikh community has faced attacks and hostility in the last few months.
- The increasing level of violence in Afghanistan remains a matter of grave concern. India calls for an immediate and comprehensive ceasefire.
- The country also believes that the peace process must be Afghan-led, Afghan-owned and Afghan-controlled.

What India should do to protect its interests?

- œ An interlinked set of mitigation strategies could help India protect its interests:
- œ Broader Diplomatic Engagement: India should consider appointing a special envoy dedicated to Afghan reconciliation. The envoy can ensure that Indian views are expressed at every meeting, broaden engagement with the Afghan government and other political actors, and reach out to certain Taliban representatives.
- œ Continued Training and Investments: India should provide more military training to Afghan security forces and invest in longer-term capacity-building programs. It should actively support and invest in the National Directorate of Security (for example, by providing training and sharing intelligence). Finally, given the continued levels of violence and the impact of the coronavirus on the Afghan economy, India should expand its development assistance.
- œ Working With and Through Others: India should look to broaden its engagements with Iran and Russia, explore opportunities for cooperation (as limited as they might be) with China, and find common ground with the United States on Afghanistan's future. This does not mean forcing competing interests to align; it means investing in a wider diplomatic initiative with the view to carve out areas of convergence.

The way forward

The 2020 Afghanistan Conference yet again reinforced the global efforts in a concerted voice that will pave way to a secure, prosperous, and peaceful Afghanistan. And the successful execution of multitudinous projects envisioned for the future of the country will invariably open the gates of prosperity not only for Afghanistan, but the entire region and the world. Indeed, the international stakeholders of Afghanistan have been contributing unremittingly and vigorously to achieve the same. For we built upon the model painstakingly in the last two decades, let us continue striving for few more steps closer toward full realization of the potential.

CHINA'S NEGATIVE YIELD ZERO COUPON BOND, IS BECOMING A 'BIG DEAL'

CONTEXT

China's first-ever sale of a negative-yield bond drew strong demand from investors seeking exposure to an economy that is returning to pre-pandemic growth rates.

◎ BACKGROUND

- œ At a time when the world is battling the Covid-19 pandemic and interest rates in developed markets across Europe are much lower, investors are looking for relatively better-yielding debt instruments to safeguard their interests.
- œ Last week, China sold negative-yield debt for the first time, and this saw a high demand from investors across Europe.
- œ As yields in Europe are even lower, there was a huge demand for the 4-billion-euro bonds issued by China.
- œ China's 5-year bond was priced with a yield of -0.152%, and the 10-year and 15-year securities with positive yields of 0.318% and 0.664%.
- œ Last year, China's finance ministry had expressed concerns over issuing a negative-yielding bond when it issued its first euro-denominated bonds. But it has since become more comfortable with the concept.
- œ As the only major economy forecast to grow this year amid the COVID-19 pandemic, China has been tapping international markets more often, catering to investor demand for exposure to its economy. Forecasts put China's GDP growth at about 1.9-2% this year.

The current situation of Indian Bond yields

- . The correlation between long term interest rates in India and global financial markets has become stronger in the last eight years highlighting the increased sensitivity of India's bond market to global spillovers.
- . The time period premium in India had an insignificant correlation with global financial coverage from 2006 to 2012.
- . However, from 2012, across the time RBI relaxed FII limits on authorities bond investments in India, the correlation turns into vital and seems to be the very best amongst all of the variables taken to date.

. Further, cross-country comparability of yield curves throughout totally different superior and rising market economies means that with the steepening of the yield curve within the aftermath of the COVID-19 Pandemic, the time period premium has widened sizably throughout all nations, each rising and superior.

◎ ANALYSIS

What are negative-yield bonds?

- œ Negative-yield Bonds are debt instruments that offer to pay the investor a maturity amount lower than the purchase price of the bond.
- œ They are financial instruments that cause purchasers to lose money.
- œ These are generally issued by central banks or governments, and investors pay interest to the borrower to keep their money with them.
 - > They are usually issued in countries with low or negative interest rates and bought by investors who want to keep money safe or avoid worse yields.
- œ Sub-zero debt is growing and corporate issuers are starting to issue bonds with negative yields as well.
- œ Negative-yield bonds attract investments during times of stress and uncertainty as investors look to protect their capital from significant erosion.

- . Current yield: Current yield is the amount that will be paid in interest on a bond over a one-year period, expressed as a percentage of its face value.
- . Yield to maturity: Yield to maturity is the amount that will be paid from now until the bond expires, also expressed as a percentage of its face value.
 - > The yield to maturity may in rare circumstances be a negative number.

Why are they in so much demand?

- œ The fact that the 10-year and 15-year bonds are offering positive returns is a big attraction at a

- time when interest rates in Europe have dropped significantly.
- œ As against minus -0.15% yield on the 5-year bond issued by China, the yields offered in safe European bonds are much lower, between -0.5% and -0.75% .
 - œ Also, it is important to note that while the majority of the large economies are facing a contraction in their GDP for 2020-21, China is one country that is set to witness positive growth in these challenging times: its GDP expanded by 4.9% in the third quarter of 2020.
 - œ While Europe, the US and other parts of the world are facing a second wave of Covid-19 cases, China has demonstrated that it has controlled the spread of the pandemic and is therefore seen as a more stable region.
 - œ Many feel that European investors are also looking to increase their exposure in China, and hence there is a huge demand for these bonds.

What factors are responsible for their high demand?

- œ High liquidity: It is the massive amount of liquidity injected by the global central banks after the pandemic began that has driven up prices of various assets including equities, debt and commodities.
- œ Temporary parking of money: Many investors could also be temporarily parking money in negative-yielding government debt for the purpose of hedging their risk portfolio in equities.
- œ Profitable interest rates: In case the fresh wave of the Covid-19 pandemic leads to further lockdowns of economies, then there could be further negative pressure on interest rates, pushing yields down further, and leading to profits even for investors who put in money at the current juncture.

- œ Profitable overall returns: In the upcoming times, institutional investors would look at the overall returns after factoring in the sharp gains from equities and commodities and discounting the negative returns on capital being used for the purpose of hedging.
- œ Maintained purchasing power: The most important reason investors would willingly choose to invest in negative-yielding bonds is when there is deflation, or a sustained drop in the price level for goods and services.

The negative side of the bond

- œ When government bonds offer negative returns, investors chase returns in risky assets like junk bonds and emerging market bonds/equities, which can create asset bubbles.
- œ It becomes hard for banks to make profits as they have to pay borrowers to take loans. Bank find difficult to get depositors to pay for keeping their money with them.
- œ Negative interest rates discourage savings by forcing people to pay interest for keeping their money in banks.

CONCLUSION

While successful vaccine trials are showing a light at the end of the tunnel, Fed policymakers see a choppy outlook several months ahead. With the geopolitical troubles between the US and China now brewing for a few years, investors have been looking for signs of the Chinese diversifying out of their massive holdings of US debt that is held in Treasuries. So far, there has been little, if any, sign of sale of these Treasuries. Just as well, because the first large tranche of Treasuries that gets sold will likely be met by an anticipation by markets that more is to come, which could result in a huge impact on the price.

CHINA THREATENS INDIA WITH ‘LIQUID BOMB’

CONTEXT

With India-China relations hitting its lowest point since the 1962 war, border infrastructure has come under intense scrutiny. The construction of several dams along the Yarlung (Brahmaputra) river on the Chinese side has been a repeated cause for concern for Indian officials and the local people, whose livelihoods and security depend on the river.

◎ BACKGROUND

- œ After troubling India militarily in the Himalayan region of Ladakh, Beijing could now hurt the South Asian country by drying up the crucial rivers that flow into the country through Tibet.
- œ China has indicated that it is going ahead with building mega-dams on the lower reaches of the Yarlung Tsangpo, which flows from Tibet into northeast India.
- œ Beijing’s control over the key rivers flowing into India gives it a chokehold on India’s economy, effectively crippling India’s interests in the North East region.
- œ The country’s occupation of Tibet, which is often called the “Third Pole”, owing to its vast freshwater and glacial resources, gives it a strategic stranglehold to dominate the bilateral discourse with India.

Third Pole

- . The Tibetan plateau is often called the “Third Pole”, owing to its glacial expanses and vast reserves of freshwater.
- . For as many as nine countries in the surrounding region, the status of rivers emerging from the plateau is a key concern.
- . China has claimed express ownership over Tibet’s waters, making it an upstream controller of seven of South Asia’s mightiest rivers – the Indus, Ganges, Brahmaputra, Irrawaddy, Salween, Yangtze and Mekong.
- . These rivers flow into Pakistan, India, Bangladesh, Myanmar, Laos and Vietnam, and form the largest river run-off from any single location.
- . It is estimated that 718 billion cubic meters of surface water flows out of the Tibetan plateau and the Chinese-administered regions of Xinjiang and Inner Mongolia to neighbouring countries each year.
- . Nearly half that water, 48%, runs directly into India.

- œ The rivers emerging from the Tibetan plateau remain vital for about nine neighboring nations in the region and the disputes about the distribution of waters have lingered for decades.
- œ However, the new Chinese belligerence is explained by the tensions in Ladakh that have worsened this year with India.
 - > At least 20 Indian soldiers were killed while clashing with PLA in the region this year, while the count of Chinese casualties remains unknown.

◎ ANALYSIS

What are China’s plans?

- œ Since 2010, China has planned hydropower projects on the river, known in India as the Brahmaputra, to harness energy in the middle reaches of the river.
- œ Now the country is focusing on the lower reaches of the river, closer to India, which could create challenges for the river’s utility in India.
- œ According to SCMP, at least 11 hydroelectric projects along the river have been operating or being planned by China over the past decade.
- œ The largest among the three known to be in operation is Zangmu, which started to fully operate in 2015.
- œ Hydropower stations in Bayu, Jiexi, Langta, Dakpa, Nang, Demo, Namcha, and Metok towns in Tibet are either on the drawing board or under construction.
- œ The middle basin of the Yarlung river is closer to the Line of Actual Control (LAC) – a 3,488 km unmarked de facto boundary between China and India that has seen decades of claims and counterclaims.
- œ The country’s new plans for harnessing the lower basin could potentially dry up the resources of the river resulting in a significant challenge to the Indian needs.

Brahmaputra River Basin

- . The Brahmaputra River Basin consists of the Ganges and Brahmaputra, which originates in Tibet and the Barak River starting in India.

- . The Brahmaputra River flows for 1,800 miles through Tibet, India, and Bangladesh.
- . Starting in the Himalayas in Tibet as the Tsangpo River, the river flows eastward for 704 miles.
 - > The Brahmaputra is identified as the flow downstream of the meeting of three tributaries, namely Lohit, Dibang and Dihang, near Sadiya.
 - > The link of Brahmaputra with Yarlung Tsangpo, which originates from the Angsi glacier near Mt. Kailash, was discovered rather recently.
 - > Out of the total length of the Brahmaputra of 2,880 km, 1,625 km is in Tibet flowing as Yarlung Tsangpo, 918 km is in India known as Siang, Dihang and Brahmaputra and the rest 337 km in Bangladesh has the name Jamuna till it merges into Padma near Goalando.
- . At the Shuomatan Point, the river bends and enters India crossing the Assam Valley.
- . It then flows south through Bangladesh exiting at the Ganges-Brahmaputra Delta into the Bay of Bengal.

Is there no water-sharing agreement?

- œ India does not have a water-sharing agreement with China, but both sides share hydrological data.
- œ The two rival countries are signatories to the data-sharing treaty signed in 2008, for the Sutlej and Brahmaputra in order to better manage the shared watercourses.
- œ Due to the tension arising after the Doklam dispute in 2017, China had stopped sharing data related to the release of water in the Brahmaputra river along with India.

Why Brahmaputra is important?

- œ The Brahmaputra River flows for more than 3,000 kilometers through Tibet, India and Bangladesh on its journey from the Himalayas to the Bay of Bengal. It is of great importance to India for following reasons.
- œ Ecological significance: In terms of its ecological significance for India, its basin is shared by Arunachal Pradesh (41.9%), Assam (36.3%), Meghalaya (6.1%), Nagaland (5.6%), Sikkim (3.8%) and West Bengal (6.3%).
- œ Biodiversity: The Brahmaputra basin belongs to the Indo-Burma biodiversity hotspot, one of the 12 hotspots of mega biodiversity on Earth recognized by the World Conservation Union (IUCN).

- œ Unique physiographic habitat: Its unique physiographic and climatic provide unique habitats for a variety of flora and fauna, including many endangered species.
 - > The basin is reported to have about 7,233 animal species that include 195 species of mammals, 607 of birds, 115 of reptiles, 54 of amphibians, 267 of fish, and 4,953 insect species. The plant resources of this region are enormous and represent the rich floristic wealth of India.
- œ Socio-economic significance: The river is of great importance for the socio-economic life of the people in Arunachal Pradesh and Assam. The river valley is home to many tribal communities that are dependent on the river for their livelihoods.
- œ Geopolitical importance: Brahmaputra river is of great importance in the present-day geopolitical context since it is also linked to Sino-Indian border disputes. The two countries have contested claims in disputed areas called South Tibet in China and Arunachal Pradesh in India, which now controls the area.

What are the environmental concerns?

- œ The Brahmaputra is a perennial river, with several peculiar characteristics due to its geography and prevailing climatic conditions.
- œ Inhabitants along the river have to deal with two floods annually, one caused by the melting of the Himalayan snow in summer and the other due to the monsoon flows.
- œ The frequency of these floods have increased and are devastating due to climate change and its impact on high and low flows.
- œ These pose a concern for the population and food security in the lower riparian states of India and Bangladesh.
- œ The river is in itself dynamic as frequent landslides and geological activity force it to change course very often.

Water constraints

- œ As India and China continue to grow demographically as well as economically amid increased consumption among its citizenry, both nations face water constraints.

The case of China

- œ Population stress: China, which is home to close to 20 per cent of the world's population, has only 7 per cent of its water resources.
- œ Rapid urbanization and pollution: Severe pollution of its surface and groundwater caused by rapid industrialisation is a source of concern for Chinese planners.

- œ Uneven water availability: China's southern regions are water-rich in comparison to the water-stressed northern part. The southern region is a major food producer and has significant industrial capacity as a consequence of more people living there.
- œ China has an ambitious plan to link its south and north through canals, aqueducts and linking of major rivers to ensure water security.
 - > Blocking rivers: In pursuit of these goals, China, being an upper riparian state in Asia, has been blocking rivers like the Mekong and its tributaries, affecting Southeast Asian countries like Thailand, Vietnam, Laos and Cambodia.
 - > Damage to environment: It has caused immense damage to the environment and altered river flows in the region. China sees these projects as a continuation of their historic tributary system as the smaller states have no means of effectively resisting or even significant leverage in negotiations.
 - > Chinese projects in the Himalayas have only recently begun to operate amid protests from India.

The case of India

- œ Water-stress: India is severely water-stressed as well. In summer, a vast majority of urban areas face water shortage.
- œ Population burden: Similar to China, India has 17 per cent of the world's population and 4 per cent of water.
- œ Uneven climatic conditions: While a majority of India's population reside in the Gangetic plains, the southern and western regions experience harsh and dry summer and the rainfall is scarce and erratic in the eastern coast.

What can be the way ahead for India?

- œ Optimum utilisation: The solution lies in the optimum utilisation of the Himalayan watershed, especially the rivers originating in India. The ambitious project of linking of rivers will also help in case of any crisis.
- œ Optimal sharing of western rivers: India should also harvest its share optimally out of the western rivers as per Indus River Treaty with Pakistan. As of now, we are not utilising our own share optimally.
- œ Strengthening disaster-management system: India should also consider strengthening our disaster-management system, earmarking key areas where its people may get affected.
- œ Effective strategy: The concrete disaster management strategy will save precious lives in the future.
- œ Assessment of China's plans: For India, the one domain in which China's status as the "upper riparian" provides an almost insurmountable challenge is in ensuring shared access to transboundary rivers. And as the recent clashes have made clear, India needs to assess how China might "weaponise" its advantage over those countries downstream. Control over these rivers effectively gives China a chokehold on India's economy.

● WRAPPING UP

Due to rising demand, extensive use and climate change have all aggravated water security problems in the region, in fact in entire South Asia. Amidst the clamour about Chinese projects on Brahmaputra, there has hardly been an objective data-based analysis of the popular "Brahma hypothesis". These contentions deserve to be examined through data, hydrological regimes, upstream interventions and their downstream implications.

THE ETHICAL QUESTIONS THAT HAUNT FACIAL-RECOGNITION RESEARCH

CONTEXT

Although facial recognition software proves to be useful in certain scenarios, what happens if this technology falls into the wrong hands. Researchers must recognize that unethical facial recognition practice is fundamentally dangerous.

◎ BACKGROUND

- œ Face-recognition technology is becoming commonplace, used in most smartphones for unlocking. Several popular mobile applications, such as Instagram and Snapchat, use the technology to tag individuals and apply filters to photographs.
- œ It is a fast-emerging market. The global facial recognition market is expected to grow annually at 22 per cent for the next two years to become a \$9.6 billion trade.
- œ While there is a range of facial recognition techniques, prevalent models rely on using an image to create a mathematical representation of a person's face.
- œ In recent years, three-dimensional facial recognition devices have captured a significant market as retailers deploy them to gauge customers' facial gestures and expressions to gain insights into their shopping behaviours.
- œ By assessing customers' facial expressions and even bodily responses, retailers are able to gain better insights into consumer behaviour, even to the point where they can predict how and when a buyer might purchase their products in the future. This helps increase sales.

History of facial recognition

- . Facial Recognition research started from 1964 in USA for an intelligence agency by a team led by Woodrow Wilson Bledsoe, mathematician and computer scientist.
- . Initially it involved manual matching of the facial characteristics assisted by computers.
- . The difficulties then encountered in the 1960s over head rotation, tilt, angle, facial expression, skin and light variation continue to be problematic even in 21st century.
- . It becomes more difficult in case of unruly crowds with fast and unpredictable movements.
- . The first time Facial Recognition Technology (FRT) was used in USA in a crowd was in January 2001 at Tampa, Florida.

◎ ANALYSIS

What is facial recognition, and how does it work?

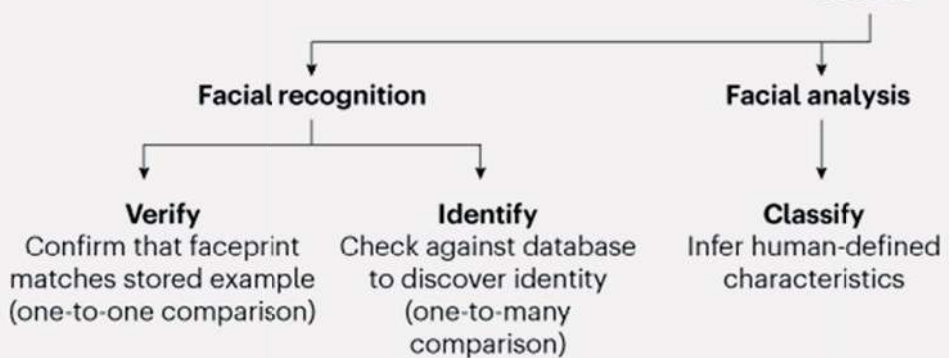
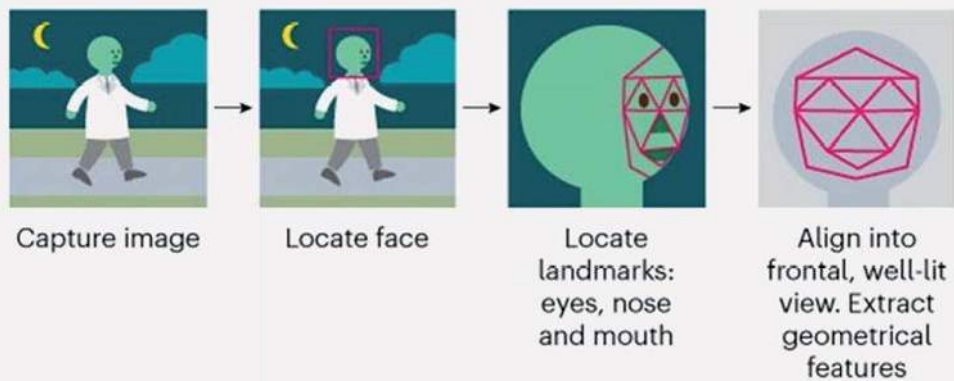
- œ Facial recognition is a biometric technology that uses distinguishable facial features to identify a person.
- œ Facial recognition is a subcategory of biometrics. It's made possible by advanced computing components, such as processors and memory, and Artificial Intelligence tools, such as machine learning.
- œ Facial recognition is when a device uses a camera to identify a face for security or other purposes.
- œ Today, it's used in a variety of ways from allowing people to unlock their phones, go through security at the airport, purchase products at stores, etc.
- œ Today, the world is inundated with data of all kinds, but the plethora of photo and video data available provides the dataset required to make facial recognition technology work.
- œ Facial recognition systems analyze the visual data and millions of images and videos created by high-quality Closed-Circuit Television (CCTV) cameras, smartphones, social media, and other online activity.
- œ Machine learning and artificial intelligence capabilities in the software map distinguishable facial features mathematically, look for patterns in the visual data, and compare new images and videos to other data stored in facial recognition databases to determine identity.

Facial Recognition Technology in India

- œ Despite a limited understanding of what it entails, the potential of facial recognition is beginning to be widely explored in India, especially in enhancing national security.
- œ The country took the first significant step in this direction in 2019 when the National Crime Records Bureau (NCRB) under the Home Ministry released a tender calling on bidders to help create an Automated Facial Recognition System (AFRS).

HOW FACIAL RECOGNITION WORKS

Facial-recognition systems analyse a face's geometry to create a faceprint — a biometric marker that can be used to recognize or identify a person. Another use is facial analysis, which tries to classify a face according to labels such as gender, age, ethnicity or emotion.



Examples:

- Unlock a smartphone
- Travel through a passport gate
- Verify school or work attendance

©nature



Examples:

- Scan crowd until 'hit' found against watch list
- Match person of interest against vast database



Examples:

- Assess person's age or gender
- Assess person's emotional state (tests are controversial and less reliable than facial recognition).

- œ Since then, the AFRS is currently being leveraged to make police forces in India more efficient.
- œ One of the biggest challenges is to manually match CCTV videos against images in various databases across governmental departments, newspapers, and other sources in the public domain.

- œ AFRS simplifies this process by extracting facial biometrics from videos and matching it with the images housed in these databases.
- œ Thus, it equips them with real-time capacity to easily monitor and nab criminals, and even identify missing children as well as deceased bodies.

- œ Further iterations are currently being explored through machine learning to enhance it.
- œ In addition to AFRS, NCRB is also reportedly looking to integrate fingerprint data under its National Automated Fingerprint Identification System (NAFIS) program with Crime and Criminal Tracking Network & Systems (CCTNS).
- œ Combined with facial data, it will greatly assist law enforcement agencies in their investigations.

The pros and cons of facial recognition technology

. Pros of facial recognition

- > **Enhanced security:** One of the major advantages of facial recognition technology is safety and security. When people know they are being watched, they are less likely to commit crimes so the possibility of facial recognition technology being used could deter crime.
 - . Law enforcement agencies use the technology to uncover criminals or to find missing children or seniors.
 - . Airports are increasingly adding facial recognition technology to security checkpoints.
- > **Automation:** Instead of hiring security officials to identify people, facial recognition technology can make the process automated. Manual recognition can be a tedious process and introduces the chances of errors. However, facial recognition works 24/7, recognizes faces automatically, and provides more reliable results.
- > **Quick and seamless:** Since there is no contact required for facial recognition like there is with fingerprinting or other security measures, facial recognition offers a quick, automatic, and seamless verification experience.

Cons of facial recognition

- œ **Threat to privacy:** The biggest drawback for facial recognition technology in most people's opinions is the threat to an individual's privacy.
- œ **Misidentification:** The technology isn't as effective at identifying people of color and women as it is white males. One reason for this is the data set the algorithms are trained on is not as robust for people of color and women. Until this is rectified, there are concerns about the ramifications for misidentifying people with the technology.
- œ **Imposes on personal freedom:** Being recorded and scanned by facial recognition technology can make people feel like they're always being watched and judged for their behavior.
- œ **Violates personal rights:** Countries with limited personal freedoms, commonly use facial

recognition to spy on citizens and arrest those deemed troublemakers.

- œ **Creates data vulnerabilities:** There is also concern about the storage of facial recognition data, as these databases have the potential to be breached.

What's the Law on Facial Recognition?

- œ The direct implementation of such technologies has not been recognized by law.
- œ As such, there is a need for having in place detailed legal frameworks passed by the Parliament of India which authorize the implementation and maintenance of such automated facial recognition technologies.
- œ Currently, in India, there is no specific law which authorizes deployment of these technologies.
- œ The Indian Information Technology Act, 2000 being India's mother legislation on the electronic format is completely silent on facial recognition. Also even under the rules passed under the Information Technology Act, 2000, there has no reference to the facial recognition.
- œ As such, for a long term deployment of these technology, it will be imperative, that the Parliament should pass strong law to not just enable legal implementation of such technologies but also the law should establish the various instances where such technologies can be so implemented.

What about Right to privacy?

- œ One of the biggest challenges concerning facial recognition technology is the fact that it would tend to violate people fundamental right to privacy enshrined under Article 21 of the Constitution of India.
- œ By virtue of the judgment of Justice Puttaswamy v/s Union of India, the Hon'ble Supreme Court of India has already declared the right to privacy as a fundamental right and such right can only be exercised in accordance with the procedure established under the law.
-) If there is no procedure established under law, any deployment or adoption of such technologies, tantamount to violation of people fundamental right to privacy.
- œ The Government needs to specifically keep in mind these factors and parameters into consideration as it move forward in the deployment of new technologies.

Where to draw the line?

- œ On the face of it, the technology appears to be just another addition to the technologically perfect systems. But the world is waking up to its perils.

- œ While many question the necessity of this technology, others have raised alarm as it can be used by governments to pervade privacy and intensify mass surveillance.

Data without consent

- œ For facial-recognition algorithms to work well, they must be trained and tested on large data sets of images, ideally captured many times under different lighting conditions and at different angles.
- œ In the 1990s and 2000s, scientists generally got volunteers to pose for these photos — but most now collect facial images without asking permission.
 - > For instance, in 2015, scientists at Stanford University in California published a set of 12,000 images from a webcam in a San Francisco café that had been live-streamed online.
 - > The following year, researchers at Duke University in Durham, North Carolina, released more than 2 million video frames (85 minutes) of footage of students walking on the university campus.
 - > In 2016, researchers at the University of Washington in Seattle posted a database, called MegaFace, of 3.3 million photos.
- œ And scientists at Microsoft Research in Redmond, Washington, issued the world's largest data set, MSCeleb5, consisting of 10 million images of nearly 100,000 individuals, including journalists, musicians and academics, scraped from the Internet.
- œ The US social-media firm Facebook, for instance, agreed this year to pay US\$650 million to resolve an Illinois class-action lawsuit over a collection of photos that was not publicly available, which it used for facial recognition (it now allows users to opt out of facial-recognition tagging).
- œ The controversial New York City-based technology company Clearview AI — which says it scraped three billion online photos for a facial-recognition system — has also been sued for violating this law in pending cases.

Ethical checkpoints

- œ Questionable research projects have popped up in the United States, too.
- œ In May this year, a press release declared that researchers had developed facial-recognition software “capable of predicting whether someone is likely going to be a criminal”, with “80 percent accuracy and no racial bias”.
- œ The announcement triggered a wave of criticism, as had previous studies that hark back to the discredited work of nineteenth-century physiognomists.

- œ Though the press release was removed following the outcry, but left a dangling question: the press release had said that the work was to be published by Springer Nature in a book series (which the publisher later denied).
- œ On 22 June, more than 2,400 academics signed a letter from a group called the Coalition for Critical Technology (CCT), asking Springer Nature not to publish the work and calling on all publishers to refrain from publishing similar studies.
- œ The letter pointed out that such studies are based on unsound science. It also noted that algorithmic tools that tell police where or who to target tend to provide a scientific veneer for automated methods that only exacerbate existing biases in the criminal justice system.

Challenges in India

- œ Absence of individual privacy protection: In the Indian context, these concerns are amplified by the absence of strong individual privacy protections and checks on government infringement on civil liberties.
- œ Although privacy has been recognized as “Fundamental Right” by Indian Supreme Court, law enforcement at both the state and central level have exhibited a growing tendency to flout court rulings in the absence of legal protections of personal privacy and data.
- œ Broad access to government: Pending legislation to guard individual privacy provides the central government with broad access to individual data and does not establish institutional checks on government use of emerging technologies with implications for individual privacy.
- œ Slow judicial system: Coupled with India's slow judicial process and weak constraints on arrest of individuals, the use of FRT raises serious concerns about both individual privacy and protections from excessive law enforcement usage.
- œ False identification: Individuals falsely identified by facial recognition technologies face potential years of imprisonment before the legitimacy of their arrest is examined in court.

© CONCLUSION

The application of facial recognition technologies in India would almost certainly aid the country's stretched law enforcement units and may prove useful in future incidents of public rioting or unrest. Given the state of current technologies, government officials in India need to critically examine the reliability of this new platform and its potential to wrongfully infringe on the rights of innocent individuals.

SECTION: B
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DEFICIENT NORTHEAST MONSOON

◎ **CONTEXT:** Rainfall over the Southern peninsular region has been deficient so far.

◎ **ABOUT:**

• **India actually has two monsoons:**

œ the southwest monsoon

œ the northeast monsoon

) **Southwest monsoon:** The southwest monsoon, which is the main monsoon, comes in from the sea and starts making its way up India's west coast in early June.

By mid-July, most of the country is covered in rain. This gradually starts clearing from most places in northwest India by October.

) **Northeast monsoon:** Also called the winter monsoon, the northeast monsoon affects India's east coast during November and December.

It is a short but intense monsoon.

• Major States receiving NE Monsoon: The states of Tamil Nadu, Karnataka, and Kerala receive most of their rainfall from the northeast monsoon, while the rest of the country receives most of its rainfall from the southwest monsoon.

• Influences: Northeast Monsoon is influenced by global climate parameters such as ENSO (El Niño – Southern Oscillation), IOD (Indian Ocean Dipole) and MJO (Madden Julian Oscillation).

• The northeast Indian monsoon (NEM) season is usually defined by the calendar months of October–December (OND), when there is significant rainfall in the southeastern part of peninsular India.

Why is the rainfall deficient this season?

• **La Niña**

œ The deficiency of rainfall is linked it to the prevailing La Niña conditions in the Pacific Ocean.

œ While El Niño (Spanish for 'little boy'), is the abnormal surface warming observed along the eastern and central regions of the Pacific Ocean (region between Peru and Papua New Guinea), La Niña (Spanish for 'little girl') is an abnormal cooling of these surface waters.

œ Together, the El Niño and La Niña phenomena are termed as El Niño Southern Oscillation (ENSO).

œ These are large-scale ocean phenomena which influence the global weather — winds, temperature and rainfall.

œ They have the ability to trigger extreme weather events like droughts, floods, hot and cold conditions, globally.

œ Each cycle can last anywhere between 9 to 12 months, at times extendable to 18 months — and re-occur after every three to five years.

œ Meteorologists record the sea surface temperatures for four different regions, known as Niño regions, along this equatorial belt.

œ Depending on the temperatures, they forecast either as an El Niño, an ENSO neutral phase, or a La Niña.



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GLISTENING 'BLUE TIDE' ALONG MUMBAI

◎ CONTEXT

The tide that produces a fluorescent blue hue—bioluminescence—made an appearance on Juhu beach in Mumbai and Devgad beach in Sindhudurg along Maharashtra's coastline.

◎ ABOUT

The blue hue, also known as bioluminescence is the production and emission of light by a living organism.

The natural phenomenon is characterised by the emission of light produced by **phytoplanktons** (microscopic marine plants), commonly known as **dinoflagellates**.

The light is produced through a series of chemical reactions due to **luciferase (oxidative enzymes)** protein.

Bioluminescence has been an annual occurrence along the west coast since 2016 during the months of November and December.

Factors responsible for its occurrence

- The main factors for its occurrence could be eutrophication – the reduction of oxygen in the water – which makes the phytoplanktons very dominant.
- High temperature, high quantity of organic material such as sewage and effluents and increased turbulence/ wave action of the water could be the cause of this bioluminescence.
- Apart from man-made causes, the adverse impact of climate change leading to increased seawater temperature could play a major role in such a phenomenon.

Why it is dangerous?

- The fluorescent blue hue may also be a signal of danger.
- Many of the species in this group are toxic. If dinoflagellates reproduce rapidly, they may cause so-called 'red tides'.
- During this period all the animals (molluscs, fish, etc.) that feed on dinoflagellates also become toxic due to the accumulation of high amounts of toxins from dinoflagellates.
- It is dangerous to eat such sea animals because the toxins that are contained in them may have various unpleasant effects: some merely irritate the bowel and cause food poisoning, whereas others, being neurotoxins, may even have an effect on memory.
- Some species, such as the sea sparkle (*Noctiluca scintillans*) are not as toxic, but may have other unpleasant effects.

Which other countries observe the same phenomenon?

Bioluminescence has been observed across India's coast as well as the coastline of many beaches in the world such as Maldives, Vietnam, Indonesia, USA, Australia and many other countries.

Is there any similar phenomenon?

- Similar to the blue tide, there exists another such phenomenon called red tide or harmful algal blooms that emits red light.
- It is rare occurrence caused when colonies of algae—simple plants that live in the sea and freshwater—grow out of control while producing toxic or harmful effects on people, fish, shellfish, marine mammals, and birds.

LAND INEQUALITY THREATENS LIVELIHOOD OF 2.5 BLN: REPORT

- **CONTEXT:** **There is urgent need to act on land equality for any significant progress towards global sustainability, stability and social justice, flags Land Inequality Initiative report.**

- **ABOUT:**
 - Land inequality has been historically measured in terms of differences in land ownership. But it is much more complex and multi-dimensional.
 - **Four approaches were used to look at land inequality:**
 - œ The size and value of land that people have access to or hold
 - œ Level of security of tenure that people have
 - œ Actual control that people have, including their decision-making power over land and
 - œ Control of the benefits from the land
 - Land inequality is central to other forms of inequality as well as many global crises and trends such as economic, political, social, spatial and environmental inequality.

The Report

The report, Uneven Ground: land inequality at the heart of unequal societies, is the first of its kind, shedding new light on the scale and speed of this growing phenomenon and providing the most comprehensive picture available today.

The report was informed under a wide partnership led by the International Land Coalition, of which CIRAD is a member, and in close collaboration with Oxfam.

Key-highlights: The current scenario of land inequality

- The top 10 percent of the rural population captures 60 percent of agricultural land value; the bottom half controls only 3 per cent.
- This land inequality continues to threaten the livelihoods of an estimated 2.5 billion people involved in smallholder agriculture.
- Global land concentration has increased continuously since the 1980s.
- Today, the largest 1 percent of farms in the world operate more than 70 percent of the world's farmland of countries including India, China, Ecuador, Guatemala, Brazil, Mexico, Ethiopia and Tanzania.
- About 84 percent of farms were smaller than two hectares, but they operated only about 12 percent of farmland, with little opportunity to be part of corporate supply chains.

The current trend

- A clear trend in most low-income countries was an increasing number of farms, combined with smaller farm sizes.
- Across the world, and especially in higher-income countries, large farms were getting bigger.
- A vast majority of the smallest farms globally were in Africa and Asia, where they were essential to the livelihoods of a large proportion of the population.
- Most farms were smaller than two hectares, and there was a significant amount of land in farms of 2-10 hectares. A very small proportion of land appeared to be part of much larger farms, the report found.



- . Hidden behind shrinking average farm sizes in most low-income countries was the increasing number of mega-farms, each taking up thousands of hectares of space.

Horizontal inequality

- . Horizontal inequality, which is inequality based on gender, ethnicity or culture in specific groups of people, is interconnected with land access, ownership and control.
- . These types of inequality undermine sustainability.
- . This is because women, indigenous people and local communities tend to be the custodians of household well-being, sustainable livelihoods, biodiversity preservation, bio-cultural conservation and social justice.

Which countries have the highest levels of inequality?

- . Asian countries such as India, Bangladesh and Pakistan had among the highest levels of inequality when land values and the landless population are included.
- . Income inequality, however, makes agrarian crisis challenging for countries like India.

Impact of growing inequality

- . **Obstacle to poverty eradication:** Growing inequality is the greatest obstacle to poverty eradication – in countries.
- . **Loss of land and livelihood:** The biggest danger is that the expansion of corporate-controlled agriculture will render the local system unviable, displacing people from their land and livelihood.
- . **Conflicts:** Increasing pressure on land from industry, agriculture and infrastructure projects has led to violent conflicts.
- . **Spread of disease:** Rapid urbanization and changes in agricultural practices such as increased commercial monocropping have also been linked to the spread of disease, including the novel coronavirus.

UMANG'S INTERNATIONAL VERSION LAUNCHED

- ◎ **CONTEXT:** India launched the **UMANG's international version in coordination with Ministry of External Affairs for select countries that include USA, UK, Canada, Australia, UAE, Netherlands, Singapore, Australia and New Zealand.**
- ◎ **ABOUT:**
 - . The **UMANG mobile app (Unified Mobile Application for New-age Governance)** is a Government of India all-in-one single, unified, secure, multi-channel, multi-lingual, multi-service mobile application providing access to high impact services of various Government of India Departments and State Governments.
 - . UMANG has now grown to provide 2039 services (373 from 88 Central departments, 487 from 101 departments of 27 States and 1,179 services for utility bill payments) and the count is galloping ahead.

Objectives

- . To act as an enabler and facilitator in developing overall mobile based service delivery ecosystem in India.
- . Provide easy access for individuals to various services via single Mobile Application, easy to remember short code and single Toll Free number.
- . Provide easy discoverability of services, easy manageability and standardisation of service delivery.

- . Provide for quick mobile enablement of e-Gov applications/services of Government departments through easy and fast integration, on-boarding, mobile front-end roll-out by bringing their services on this mobile application platform.
- . Provide another value added services to departments via a common platform through integration with Telecom Service Provider and Payment gateway.

Significance of the step

- . It will help Indian international students, NRIs and Indian tourists abroad, to avail Government of India services, anytime.
- . It will also help in taking India to the world through 'Indian Culture' services available on UMANG and create interest amongst foreign tourists to visit India.

PILIBHIT TIGER RESERVE GETS GLOBAL AWARD FOR DOUBLING TIGER POPULATION

◎ CONTEXT:

The Pilibhit Tiger Reserve (PTR) has bagged international award TX2 for doubling the number of tigers in the past four years. The number of tigers in the reserve area has gone up to 65 from 25 in the period of just four year.

◎ ABOUT

The Pilibhit Tiger Reserve

-] The Pilibhit Tiger Reserve is situated in Uttar Pradesh, forming part of the **Terai Arc Landscape**, in the **upper Gangetic Plain Biogeographic Province**.
-] It lies along the India-Nepal border in the foothills of the Himalayas and the plains of the Terai in Uttar Pradesh.
-] It is one of India's 51 Project Tiger reserves.
-] **Rivers:** Some river originating from the reserve, which is also the catchment of several others like Sharda, Chuka and Mala, Khannot.
-] **Forest:** The habitat is characterized by Saal Forests, tall grasslands and swamp maintained by periodic flooding from rivers.
-] The Sharda Sagar Dam extending up to a length of 22 km is on the boundary of the reserve.

Tiger Population in India

- . Recently, India's tiger census of 2018 entered the Guinness Book of World Records for being the largest ever camera-trap wildlife survey conducted anywhere in the world.
- . According to the survey, the country was home to an about 2,967 tigers.
- . Of all the big cats, 2,461 (around 83%) have been photo-captured.
- . The country's tiger population increased by roughly one-third, from 2,226 in 2014 to 2,927 in 2018 following efforts that included better corridors between isolated pockets of tiger territory, reduced poaching and building up prey numbers through habitat restoration.
- . India now has nearly 70 per cent of the global tiger population and 50 tiger reserves. The tiger tally in the country stands at 2,967.
 - > The tiger population in the country has grown from 1,400 in 2014 to 2,967 in 2019.



- > Madhya Pradesh has the maximum number of tigers at 526.
- > Corbett Tiger Reserve in Uttarakhand has the highest number of 231 big cats in the country.

The Award

- . Set in 2010 by the 13 tiger range countries, the goal known as TX2 is credited with reversing the downward decline of tigers from a low.
- . 13 Tiger range countries: India, Nepal, China, Russia, Bangladesh, Thailand, Vietnam, Malaysia, Bhutan, Indonesia, Laos, Cambodia and Myanmar.
 - œ PTR was the first to receive the award among 13 tiger range countries.
- . Key international organization: UNDP, Global Tiger Forum, International Union for Conservation of Nature, World Wide Fund for Nature, Conservation Assured/Tiger Standards and the Lion's Share.

CHINA LAUNCHES CHANG'E-5 MOON PROBE TO BRING BACK LUNAR ROCKS

◎ CONTEXT:

China successfully launched its Chang'e-5 lunar mission to collect rocks from the moon - the first attempt by any country since the 1970s.

◎ ABOUT:

- The Chang'e-5 probe will attempt to collect 2 kilograms (4.5 pounds) of samples in **Oceanus Procellarum**.
- **Composition:** The spacecraft is made up of an orbiter, a lander, an ascender and a returner.
- **Time-period:** From start to finish, the mission will last more than 20 days.
- Once in the moon's orbit, the probe will deploy a pair of vehicles to the surface to drill into the ground and collect soil and rock samples.
- If successful, the mission will make China only the third country to have retrieved lunar samples, following the United States and the Soviet Union decades ago.

Chang'e Program

- . Chang'e 5, China's first-ever sample-return effort, is the sixth and most ambitious mission in the Chang'e program of robotic lunar exploration, which is named after a moon goddess in Chinese mythology.
- . China launched the Chang'e 1 and Chang'e 2 orbiters in 2007 and 2010, respectively, and the Chang'e 3 lander-rover duo touched down on the moon's near side in December 2013.
- . The Chang'e 5T1 mission launched a prototype return capsule on an eight-day trip around the moon in October 2014, to help prepare for Chang'e 5.
- . And in January 2019, Chang'e 4 became the first mission ever to ace a soft landing on the moon's mysterious far side.
- . Chang'e 4's lander and rover are still going strong, as is the Chang'e 3 lander. (The Chang'e 3 rover died after 31 months of work on the lunar surface.)

Where will it land?

- . The mission will land in the Mons Rümker area of the huge volcanic plain Oceanus Procellarum (“Ocean of Storms”), portions of which have been explored by a number of other surface missions, including NASA’s Apollo 12 in 1969.
- . It is a massive lava plain.
- . This large dark spot, stretching about 2,900 kilometers (1,800 miles) wide, could be a scar from a giant cosmic impact that created an ancient sea of magma.

The previous attempts

- . US astronauts brought back 382 kilograms (842 pounds) of rocks and soil during the Apollo program, between 1969 and 1972.
- . The Soviet Union collected 170.1 grams (6 ounces) of samples in 1976.
- . In the decades since, data from orbital remote sensing missions has shown there is a much greater diversity of rock types and ages on the moon than existing samples suggest.

Significance of the mission

- . These samples could help scientists understand more about the moon’s origins and foundations and set the foundation for more complex sample retrieval missions in the future, potentially on other planets.
- . The mission may help answer questions such as how long the moon remained volcanically active in its interior, and when its magnetic field -- key to protecting any form of life from the sun’s radiation - dissipated.

Chang’e 5 landing site

Aiming for the flat volcanic plain of Oceanus Procellarum, this Chinese lander is tasked with sampling lunar soil and rock and launching the specimens back to Earth.

NEAR SIDE OF THE MOON



MATTHEW W. CHWASTYK, NG STAFF.
 SOURCE: NASA/JPL

COPERNICUS SENTINEL-6 MICHAEL FREILICH SATELLITE

◎ **CONTEXT:**

The Copernicus Sentinel-6 Michael Freilich satellite, designed to monitor oceans, has been launched from the Vandenberg Air Force base in California aboard a SpaceX Falcon 9 rocket.

◎ **ABOUT**

- The Sentinel-6 Michael Freilich satellite has been named after Dr. Michael Freilich, who was the Director of NASA’s Earth Science Division from 2006-2019 and passed away in August this year.
-) The major objectives of the Satellite:
 - œ To ensure the continuity of sea-level observations into the fourth decade

œ To provide measurements of global sea-level rise.

-) The Sentinel is a joint endeavour between Europe and the US, and will continue the measurements that have been made by a succession of spacecraft, called the Jason-Topex/Poseidon series, going back to 1992.

Jason Continuity of Service (Jason-CS) mission

- . The mission, called the Jason Continuity of Service (Jason-CS) mission, is designed to measure the height of the ocean, which is a key component in understanding how the Earth's climate is changing.
- . The spacecraft consists of two satellites, , called:
 - > Sentinel-6
 - > Sentinel-6B (to be launched in 2025)
- . It has been developed jointly by the European Space Agency (ESA), NASA, European Organisation for the Exploitation of Meteorological Satellites (Eumetsat), the USA's National Oceanic and Atmospheric Administration (NOAA) and the EU, with contributions from France's National Centre for Space Studies (CNES).

Key-highlights

- . This is a part of the next mission dedicated to measuring changes in the global sea level.
- . Other satellites that have been launched since 1992 to track changes in the oceans on a global scale include the TOPEX/Poseidon, Jason-1 and OSTN/Jason-2, among others.

Significance of the mission

- . Data from satellites such as Sentinel-6 help scientists foresee the effects of the changing oceans on the climate.
- . Further, in order to measure and track changes in the oceanic heat budget, scientists need to know the ocean currents and heat storage of the oceans, which can be determined from the height of the sea surface.

DESALINATION PLANTS

◎ **CONTEXT:**

In a latest development, Maharashtra announced the setting up of a desalination plant in Mumbai, becoming the fourth state in the country to experiment with the idea.

◎ **ABOUT:**

What is a desalination plant?

- . A desalination plant turns salt water into water that is fit to drink.
- . These plants are mostly set up in areas that have access to sea water.
- . Which technologies are preferred?
- . The most commonly used technology used for the process is **reverse osmosis** where an external pressure is applied to push solvents from an area of high-solute concentration to an area of low-solute concentration through a membrane.
- . The **microscopic pores** in the membranes allow water molecules through but leave salt and most other impurities behind, releasing clean water from the other side.

How widely is this technology used in India?

- Desalination has largely been limited to affluent countries in the Middle East and has recently started making inroads in parts of the United States and Australia.
- In India, the following states are using the technology:
 - Tamil Nadu:** Tamil Nadu has been the pioneer in using this technology, setting up two desalination plants near Chennai in 2010 and then 2013. The two plants supply 100 million litres a day (MLD) each to Chennai. Two more plants are expected to be set up in Chennai.
 - Gujarat:** The other states that have proposed these plants are Gujarat, which has announced to set up a 100 MLD RO plant at the Jodiya coast in Jamnagar district. There are also proposals to set up desalination plants in Dwarka, Kutch, Dahej, Somnath, Bhavnagar and Pipavav, which are all coastal areas in Gujarat.
 - Andhra Pradesh:** Andhra Pradesh, too, has plans of setting up a plant.

Issues & challenges

- Expensive affair:** Desalination is an expensive way of generating drinking water as it requires a high amount of energy.
- Disposal issue:** The other problem is the disposal of the byproduct — highly concentrated brine — of the desalination process. While in most places brine is pumped back into the sea, there have been rising complaints that it ends up severely damaging the local ecology around the plant.

INDIA TO LAUNCH DEEP SEA MISSION

◎ CONTEXT:

India will soon launch an ambitious “Deep Ocean Mission” that envisages exploration of minerals, energy and marine diversity of the underwater world, a vast part of which still remains unexplored.

◎ ABOUT:

- The mission, which is expected to cost over ₹4,000 crore, will give a boost to efforts to explore India’s vast Exclusive Economic Zone and Continental Shelf.
- The mission will also involve developing technologies for different deep ocean initiatives.
- The multi-disciplinary work will be piloted by the MoES and other government departments like the Defence Research and Development Organisation, Department of Biotechnology, Indian Space Research Organisation (ISRO), Council for Scientific and Industrial Research (CSIR) will be stakeholders in this mission.
- Some of the technologies involved will be developed by organisations such as the ISRO and DRDO.

Exploration of Indian Ocean

- India has been ear-marked nearly 1.5 lakh square kilometres of area in the central Indian Ocean for exploration.
- In September 2016, India signed a 15-year contract with the International Seabed Authority (ISA) for exploration of **Poly-Metallic Sulphides (PMS)** in the Indian Ocean.

Poly-Metallic Sulphides (PMS)

- Poly-Metallic Sulphides (PMS), which contain iron, copper, zinc, silver, gold, platinum in variable constitutions, are precipitates of hot fluids from upwelling hot magma from deep interior of the oceanic crust, discharged through mineralized chimneys.

- PMS in the Ocean Ridges have attracted worldwide attention for their long term commercial as well as strategic values.
- The 15-year contract formalised India's exclusive rights for exploration of PMS in the allotted area in the Indian Ocean.
- The ISA earlier approved 10,000 sq. km for India with a 15-year PMS exploration plan along the Central Indian Ridge (CIR) and Southwest Indian Ridge (SWIR) region of the Indian Ocean.
- The ISA is an institution set up under the Convention on Law of the Sea to which India is a Party.

IRNSS NOW PART OF WORLD WIDE RADIO NAVIGATION SYSTEM

◎ **CONTEXT:**

The Indian Regional Navigation Satellite System (IRNSS) has been accepted as a component of the World Wide Radio Navigation System (WWRNS) for operation in the Indian Ocean Region by the International Maritime Organization (IMO).

What is IRNSS?

- IRNSS is an independent regional navigation satellite system developed by India.
- It is designed to provide accurate position information service to assist in the navigation of ships in Indian Ocean waters.
- It could replace the US-owned Global Positioning System (GPS) in the Indian Ocean extending up to approximately 1500 km from the Indian boundary.

What does the International Maritime Organisation's (IMO) recognition of the IRNSS mean?

- The IMO is the United Nations' specialised agency responsible for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.
- With the recognition as a component of the of the World-wide Radio Navigation System (WWRNS), the Indian navigation system is similarly placed as GPS, most commonly used by marine shipping vessels across the world or the Russian Global Navigation Satellite System (GLONASS).
- Unlike GPS, however, IRNSS is a regional and not a global navigation system.
- Which other countries have their own navigation systems?
- After the US, Russia and China that have their own navigation systems, India has become the fourth country to have its independent regional navigation system.

Significance of the achievement

- This will enable merchant vessels to use IRNSS for obtaining position information similar to GPS and GLONASS to assist in the navigation of ships in ocean waters within the area covered by 50°N latitude, 55°E longitude, 5°S latitude, and 110°E longitude.
- This is a significant achievement of Ministry of Ports, Shipping and Waterways (MoPSW), Directorate General of Shipping (DGS) and Indian Space Research Organisation (ISRO) towards "Atmanirbhar Bharat".



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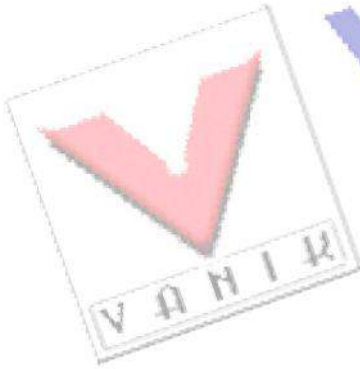
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SECTION: A
(MAINS)
CURRENT AFFAIRS



VANIK-IAS
Exclusive Coaching for UPSC/OPSC

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

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

- œ COVID-19 is the first pan India biological disaster being handled by the legal and constitutional institutions of the country.
- œ The lockdown imposed was under the Disaster Management Act, 2005 (DM Act).
- œ The legislative intent of the DM Act was to, "provide for the effective management of disasters".
- œ 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".
- œ 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?

- œ **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.
- œ **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.
- œ 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.
- œ 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

œ

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

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

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

- œ India's public health infrastructure has already been in a dysfunctional state before the pandemic.
- œ 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.
- œ In such a situation, accessing healthcare from highly unaffordable private hospitals is nearly impossible for the majority sections of the population.
- œ What are the lessons learned from the pandemic?
- œ **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.
- œ 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.
- œ 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.
- œ **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.
- œ **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.
- œ **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?

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

- œ 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.
- œ Many were also forced to stay back in cities in the government shelters which had inadequate facilities.
- œ 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.
- œ As the unlocking has started in India, their conditions are turning worse without adequate state assistance for basic survival.

How to resettle the priorities?

- œ The Disaster Management Act might not be categorically designed for dealing with a health crisis.
- œ **Sub-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".
- œ Also, **entry 12** mentions about "minimum standard of relief to be provided to persons affected by the Disaster".
- œ 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.
- œ 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.
- œ Such a situation raises serious questions about the state's preparedness in battling the pandemic as a 'disaster.'

What needs to be done?

- œ **Collaboration:** There is a need for strengthening collaboration, command, control, and communication systems for efficient, prompt, and

graded response and recovery.

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

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

- œ 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.
- œ 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.
- œ 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.

- œ 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?

- œ 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.
- œ China has already been formulating the five-year plan for the communist nation, as well as long-term goals through 2035.
- œ 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.
- œ 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.
- œ China will "implement hydropower exploitation in the downstream of the Yarlung Zangbo River" (the Tibetan name for Brahmaputra River).
- œ 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?

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

- œ The Brahmaputra valley supports the lives of several indigenous communities.
- œ 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?

- œ 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 Brahmaputra's large mainstream flows of water and sediments are contributed by many of its large tributaries including Dibang, Dihang (Siang), Lohit, 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

- œ The above conclusion cannot be stated for the present proposed project in the Medog county of TAR.
- œ 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.
- œ In Medog, the annual average precipitation is of 3,000 mm, substantially higher than the 500 mm recorded at Nuxia.
- œ Moreover, there is some dispute with the annual discharge data of the Yarlung at the point of leaving China.
- œ 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.
- œ The percentage divergence between the two data sets is quite big.
- œ However, some older estimates in India suggest that the discharge in Tuting in Arunachal Pradesh is 179 BCM.
- œ 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?

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

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

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

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

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

◎ ANALYSIS

What is SCO?

- œ The SCO is an economic and security bloc in which India and Pakistan were admitted as full members in 2017.
- œ Its founding members included China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.
- œ 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.
- œ 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

- œ **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.
- œ **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**".
- œ **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 communiqué 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?

- œ **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.
- œ **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.

- œ **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.
- œ **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.
- œ **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.
- œ **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?

- œ 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.
- œ New Delhi's policy toward Beijing in the last few years has been cautious.
- œ 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).
- œ 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).
- œ 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?

- œ **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.

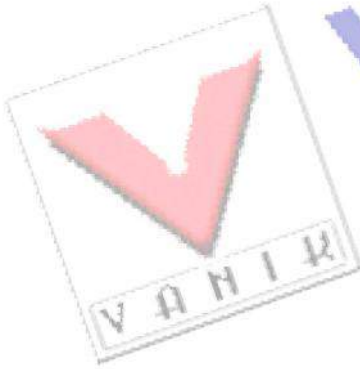
- œ **Only dialogues:** Any form of joint containment of Chinese influence in the region would not happen within the confines of the SCO. We are therefore left with dialogue: The SCO is one more avenue of dialogue with Beijing, but that is all it is.
- œ **Questionable anti-terrorist structures:** It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

- œ 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.
- œ People in the Northeast have preferred sustainable thinking and planning, and community involvement has been a pre-condition for development-based initiatives.
- œ The region has always faced challenges of geographic and economic integration with mainland India.
- œ 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.
- œ 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?

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

How will ODOP Scheme help?

- œ 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.
- œ 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.
- œ 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:

- œ **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.
- œ **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.

- œ **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

- œ the Act-East Policy
- œ Northeast Special Infrastructure Development Scheme
- œ Non Lapsable Central Pool of Resources (NLCPR) Scheme

What other efforts are required for the region?

- œ **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.

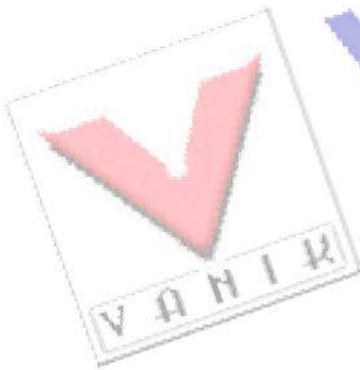
- œ **Employment generation:** Non-Farm Rural Employment and Income Generation, especially handlooms, handicrafts and animal husbandry.

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

- œ **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.

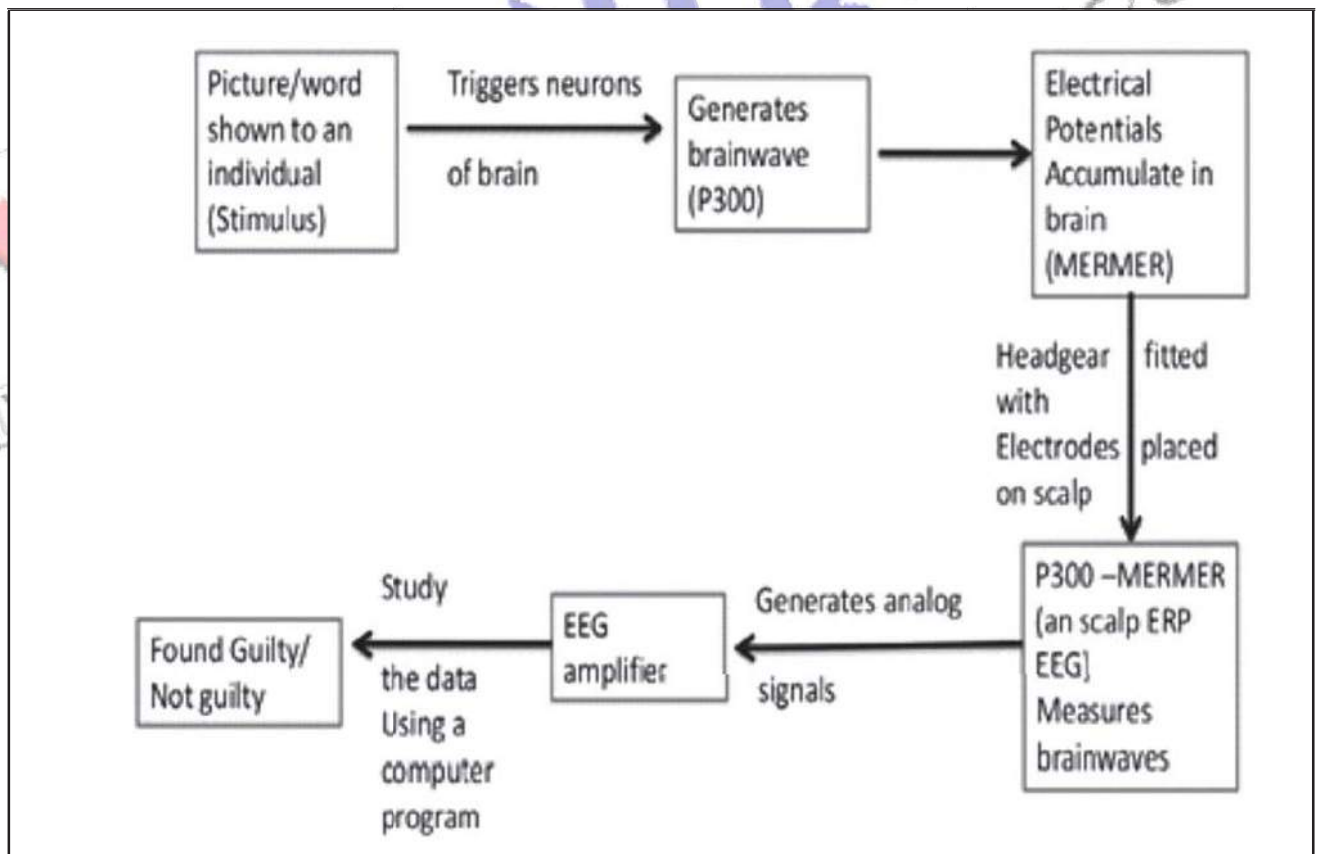
◎ BACKGROUND

- œ 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 Forensic Science Laboratory (FSL) lab in Gandhinagar for brain mapping and polygraph tests.
- œ 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.
- œ 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.
- œ 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?

- œ 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.
- œ The electrodes are connected to a laptop with brain fingerprinting software via Bluetooth.
- œ Details and photographs of the crime scene which are not in public domain are projected on the screen in front of the suspect.
- œ 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.
- œ This movement is called P 300 MERMER ("Memory and Encoding Related Multifaceted Electroencephalographic Response"), which is captured on the computer.



- œ The P300 is not the only brainwave used by brain fingerprinting technologies.
- œ 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?

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

- œ 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?

- œ 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?

- œ 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.
- œ 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.
- œ 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?

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

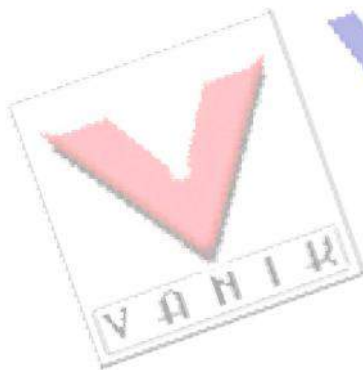
What are the limitations of the technology?

- œ 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.
- œ Brain fingerprinting detects only information, and not intent.

- œ Brain fingerprinting is not applicable for general screening.
- œ Brain fingerprinting does not detect lies. It simply detects information.
- œ Just as all witness testimony depends on the memory of the witness, brain fingerprinting depends on the memory of the subject.
- œ 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.
- œ 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.



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

- œ 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.
- œ **The demands:** The participant has sought:
 - > a compensation of ₹5 crore
 - > the testing, manufacturing, and distribution of the vaccine be stopped immediately
- œ Issuing a statement, Serum denied the allegations and said the vaccine is safe and immunogenic.
- œ 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?

- œ Covishield vaccine is being developed from the “master seed” of the University of Oxford and Anglo-Swedish drugmaker AstraZeneca’s Covid-19 vaccine trial.
- œ 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.
- œ 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.
- œ 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, Novavax’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?

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

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

- œ 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:

- œ **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.
- œ **Informed consent:** Ethical debates also surround vaccine implementation and delivery, such as those concerning informed consent
- œ **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?

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

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

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

What challenges will India face in its vaccination program?

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

SECTION: B
(PRELIMS)

CURRENT AFFAIRS



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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.



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- . 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

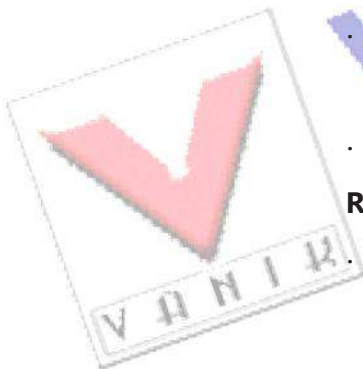
- . It is the international standard-setting body responsible for developing and assisting in the implementation of principles, standards and other supporting material for the supervision of the insurance sector.
- . The IAIS also provides a forum for Members to share their experiences and understanding 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 (NAIC)
- . **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

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-quantitative 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).

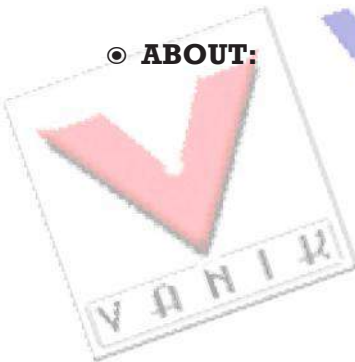
◎ ABOUT:

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 skill 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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SECTION: A
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CURRENT AFFAIRS



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MOON CONTROLS RELEASE OF METHANE IN ARCTIC OCEAN: STUDY

CONTEXT

As per a latest study lead by University in Tromso (UIT), the moon has a role to play in ‘controlling’ the amount of methane gas released by the Arctic Ocean.

◎ BACKGROUND

- œ For thousands of years, the Arctic Ocean has been naturally releasing enormous amounts of methane into the atmosphere—a fact not widely known.
- œ Methane is a potent greenhouse gas and its release can significantly impact the global climate.
- œ The world’s oceans are large reservoirs of this gas, where it is stored in the form of solid methane hydrates within the seafloor.
- œ Climate experts have been warning the world that these leaks can intensify as the ocean warms up.
- œ This way, we may enter into a self-accelerating loop of more emissions-more warming-more emissions.
- œ While anthropogenic activities continue to contribute to growing methane concentrations in the atmosphere, the current study indicates that Earth’s sole natural satellite—the Moon—may also be contributing in some form.
- œ Although ocean methane emissions are considered to be widespread their dynamics and the physical processes behind their evolution are little understood.
- œ Given the impact of methane as a greenhouse gas, the dynamic of oceanic methane emissions, which could potentially reach the atmosphere, introduces a non-negligible doubt on the global budget of atmospheric methane.

◎ ANALYSIS

How Arctic Ocean leaks methane?

- œ In the field of methane emission research today, the Arctic is one of the most important regions worldwide.

Methane

- . Methane (CH₄) is a colorless, odorless, and highly flammable gas.
- . It is the main component in natural gas, which is used to generate electricity and heat homes around the world.
- . It can be produced naturally and synthetically, and when burned in the presence of oxygen, it produces carbon dioxide and water vapor.

. Use: It is used

- > to produce heat and electricity around the world
- > to produce other important gases like hydrogen and carbon monoxide and carbon black, in chemical reactions

- œ Large quantities of methane are stored in the Arctic in **natural gas deposits, permafrost,** and as undersea **clathrates.**
- œ Methane deposits in permafrost and hydrates are considered to be very sensitive in the expansive shallow-shelf regions, because with the relatively low pressures it would only take a small temperature change to release large amounts of methane.
- œ The potential for this gas to escape the ocean, and contribute to the greenhouse gas budget in the atmosphere, is an important mystery that scientists are trying to solve.
- œ The total amount of methane in the atmosphere has increased immensely over the past decades.
- œ The Arctic is considered ground zero in the debate about the vulnerability of frozen methane deposits – which have been called the **“sleeping giants of the carbon cycle”** - in the ocean, and if releases were to exceed a tipping point, it could increase the speed of global heating.

Sleeping giants of the carbon cycle

- . Scientists estimate 1,400 gigatonnes of carbon are locked up in subsea hydrates (frozen methane and other gases) under Arctic submarine permafrost, some of which could be vulnerable to global heating.
- . If large volumes were released, this could rapidly destabilise the climate because methane is a potent greenhouse gas with a warming effect 80 times stronger than carbon dioxide over a 20-year period.
- . Scientists have thus listed Arctic hydrate destabilisation as one of four most serious scenarios for abrupt climate change.

- . This possibility – sometimes referred to as the ‘clathrate gun hypothesis’ – has been the basis for doomsday scenarios of runaway warming that tips the Earth towards a hothouse state.
- . However, several studies suggest such fears are exaggerated.

What are the sources of methane in Arctic Ocean?

There are two potential sources of methane in the Arctic.

- œ **Methyl clathrate:** The first source of methane is called methyl clathrate. Methyl clathrates are molecules of methane that are frozen into ice crystals.
 - > They can form deep in the Earth or underwater, but it takes very special conditions, with high pressure and low temperature, to make them.
 - > If the temperature or pressure changes, the ice that imprisons the methane will break apart, and the methane will escape.
- œ **Presence of organic material:** The other major source of methane in the Arctic is the organic matter frozen in permafrost, which contains a lot of carbon.
 - o New methane is continuously being produced because the Arctic regions are rich in organic material that is decomposed by microbes in the sediment.
 - o The activity of these microbes and thus the biological release rates of methane are also stimulated by increases in temperature.

How moon controls the release of methane?

- œ The moon controls one of the most formidable forces in nature—the tides that shape our coastlines.
- œ Tides, in turn, significantly affect the intensity of methane emissions from the Arctic Ocean seafloor.

Tides and Moon

- . High and low tides are caused by the Moon.
- . The Moon's gravitational pull generates something called the tidal force.
- . The tidal force causes Earth—and its water—to bulge out on the side closest to the Moon and the side farthest from the Moon. These bulges of water are high tides.

What are the observations made?

- œ **Vulnerable to slight pressure change:** The gas accumulations, which are in the sediments within a meter from the seafloor, are vulnerable to even slight pressure changes in the water column.
 - > Low tide means less of such hydrostatic pressure and higher intensity of methane release.
 - > High tide equals high pressure and lower intensity of the release.
- œ It is the first time that this observation has been made in the Arctic Ocean. It means that slight pressure changes can release significant amounts of methane.

What are the major implications of the findings?

The findings have two major implications.

. Methane emission

- > The first concerns the amount of methane the Arctic Ocean may be releasing into the atmosphere.
- > Methane is an extremely potent greenhouse gas. Once released into the atmosphere, it has 86 times the warming potential of carbon dioxide before it decays to the latter after one or two decades.
- > It is currently generated by human activities like fossil fuel production and transportation, livestock agriculture and the decay of organic material in landfills.
- > But there is also concern that, as the planet warms, it could be released by the thawing of frozen gas deposits in the Arctic Ocean known as hydrates.
- > Now, the new study provides evidence that Arctic Ocean methane release is occurring more often than previous observation techniques have revealed.

. Interaction of global warming with sea level rise to influence Arctic Ocean methane release

- > The second implication has to do with how global warming will interact with sea level rise to influence Arctic Ocean methane release.
- > While higher temperatures mean greater thawing, the fact that greater water pressure reduces the height and volume of gas releases may mean that sea level rise partly counterbalances the impact of warming.

Which method is used?

- œ The observations were made by placing a tool called a **piezometer** in the sediments and leaving it there for four days.

Piezometers

- Piezometers are the geotechnical sensors that are used to measure pore water pressure (piezometric level) in the ground.
- Piezometers or pore pressure meters are the pressure transducers that are installed beneath the ground to measure the sub-surface piezometric level within groundwater level, soil, or rock.

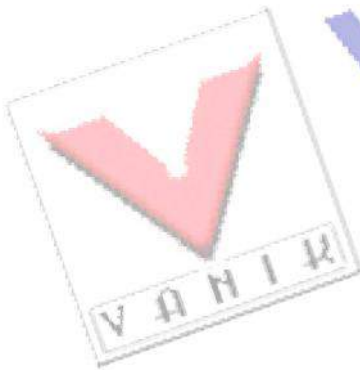
- œ It measured the pressure and temperature of the water inside the pores of the sediment.
- œ Hourly changes in the measured pressure and temperature revealed the presence of gas close to the seafloor that ascends and descends as the tides change.
- œ The measurements were made in an area of the Arctic Ocean where no methane release has

previously been observed but where massive gas hydrate concentrations have been sampled.

- œ These observations imply that the quantification of present-day gas emissions in the Arctic may be underestimated.
- œ High tides, however, seem to influence gas emissions by reducing their height and volume.

© CONCLUSION

Our Earth systems are interconnected in ways that humans are still learning about. And here comes the current study which reveals one of such interconnections in the Arctic: The moon causes tidal forces, the tides generate pressure changes, and bottom currents that in turn shape the seafloor and impact submarine methane emissions.



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INDIAN FOREIGN POLICY AND ITS ASPIRATIONS: INSTITUTIONAL DESIGN MATTERS

CONTEXT

The Indian diplomatic architecture is undertaking a much-needed overhaul, with the seven verticals, new divisions, and technology upgrade through NEST. However, there remain issues and areas of reform, which necessitate a deeper examination

◎ BACKGROUND

- œ Indian diplomacy has seen monumental changes over the centuries.
- œ These transformations have allowed the country to cope with the changing demands of external affairs.
- œ As the MEA prepares itself to meet the aspirations of a 21st-century India, it is clear that the process of evolution in its institutional underpinnings will have to be a constant one.
- œ Globally, the country wants to remain a relevant and influencing power on vital issues ranging from digital technologies to the space and cyber commons, climate sustainability to fair trade.
- œ Now, the External Affairs Ministry have set into motion a series of structural changes to bring the ministry up to speed with the increasingly complex and diverse needs of India's foreign policy.
- œ This is the first major overhaul in the ministry in nearly five decades.

- œ By then, however, the East India Company, through a series of Charter Acts, had become a shadow of its past self.
- œ The British found it necessary to restructure the foreign department for better management, and **Governor General Ellenborough**, therefore, carried out administrative reforms and created four departments:
 - > Foreign
 - > Home
 - > Finance
 - > Military
- œ By September 1946, India had come close to Independence. Hence, there was a need for a different name and a different structure for a newly formed country.
- œ The **Indian Foreign Service** was created for India's diplomatic, consular and commercial representation overseas.

◎ ANALYSIS

How history shaped India's Foreign Services?

- œ In 1783, the Board of Directors of the East India Company passed a resolution at Fort William, to create a department that would help "relieve the pressure" on the **Warren Hastings** administration in conducting its "secret and political business".
 - > Those were difficult times for the East India Company, having just barely saved face against the Maratha Empire in the **First Anglo-Maratha War**, and losing to **Hyder Ali** in the South.
 - > The British Parliament was about to pass the **Pitts India Act, 1784**, which would further limit the independent powers of the East India Company.
- œ This department expanded its outreach to diplomacy, to finally become the IFS.
- œ By 1843, the British were powerful. Only Punjab was left to be conquered.

What are India's current aspirations?

- Today, the global order is far different than what it was 50 years ago, when the Cold War was at its peak, memories of World War II were still raw, and India had decided not to align itself with either of the two superpowers.
- The India of 2020 has aspirations of becoming a key global power, with the ability to project its clout far beyond its borders.
- Through wider global engagement, India is aiming to be a rule-maker, and not merely a rule-taker.

What factors influences Indian foreign policy?

India's foreign policy is shaped by five broad factors viz. geography; strategic culture; India's requirements and goals; global and regional challenges; and resources.

- œ **Geography:** The most important factor is India's geographic location. India's immediate neighbourhood and how well the country manages it, has the greatest influence on how effectively the country can interact with the rest of the world.

- œ **Strategic culture:** India's strategic culture shaped by its history, its philosophy which emphasizes non-aggressive behaviour, and traditions have influenced foreign policy making significantly.
- œ **Aims and objectives:** The country's requirements and goals, which have been changing with the times, also impact external affairs.
- œ **Global and regional challenges:** Global and regional challenges are another aspect in the shaping of foreign policy.
- œ **Resources:** Also, the resources (human skills and funds) available to the country, have a significant impact on the performance of that country in the global stage.

What are the new verticals of MEA?

- œ As 2020 began, the MEA undertook a major overhaul, empowering seven different Additional Secretaries and reorganising their tasks along verticals like culture, and trade and development, amongst others.
- œ These verticals will have career diplomats at the level of Additional Secretaries and above. With this overhaul, administrative tasks were segregated from diplomacy.
- œ The seven verticals are designed to give more power to Additional Secretaries, thereby, taking pressure off the Secretaries to handle the big ticket issues.
- œ The following are the seven verticals of the MEA:
 - > Cultural Diplomacy
 - > Economic and Trade Coordination
 - > Multinational Organisations and Global Summits
 - > Development Partnership
 - > West Asia and Africa
 - > Indian Ocean and Indo-Pacific
 - > Europe
- œ With such a restructuring, the MEA seeks to define the future path of Indian diplomacy. In the restructuring plans, the MEA is also bringing in experts from the private sector and non-profit bodies as well.

Quick details:

- . **Nature:** The new structure will be more corporate in nature.
- . **Head:** Each of these verticals will be headed by the equivalent of 'political directors' at the additional secretary level.

- . **Objective:** The idea behind the concept is to decentralise the present pyramid-like structure, to separate routine foreign policy work from strategic projects.

How will the new verticals define the future path?

- œ **Emergence of soft power:** The verticals of cultural diplomacy, economic and trade coordination—and, to some extent, multinational organisations and summits—will lead India's rally to fortify its soft power.
- œ **Permanent seat in UNSC:** In addition, by focusing on multinational organisations and global summits, India's claim to a permanent seat at the United Nations Security Council will only get bolder.
- œ **Partnership for development:** The Development Partnership vertical, meanwhile, can work in two ways.
- œ **Technology-friendly:** First, India could enlist the assistance of other countries for projects like the Smart Cities Initiative where Indian cities work with foreign cities to become "smart", i.e., become more technology-friendly.
- œ **Building Infrastructure for neighbours:** Second, India can help neighbouring countries like Afghanistan, Bangladesh, Bhutan and Nepal in building infrastructure.
- œ **Controlling vital regions:** Complete dedicated verticals for West Asia and Africa, the Indian Ocean and Indo-Pacific, and Europe signify India's seriousness in cooperating with countries in these regions.
 - > For example, India would want to continue the upward trajectory in its ties with **Gulf** countries like the **UAE** and **Saudi Arabia** at a time of great regional flux in the **Middle East**.
 - > Africa, meanwhile, is becoming a centre of power rivalry as China expands its economic footprint in the continent.
 - > The Indian Ocean and the larger Indo-Pacific region is another geography where Indian interests are at stake.

Importance of Indian Ocean

- . Indian Ocean Sea Lanes of Communication (SLOCs) are considered among the most important in the world
- . 80 percent of the world's seaborne trade in oil transits through Indian Ocean choke points, 40 percent passing through the Strait of Hormuz, 35 percent traversing the Strait of Malacca, and 8 percent through the Bab el-Mandab Strait.

- . This is the reason for China's interest in controlling Indian Ocean SLOCs—to protect its energy interests and the Maritime Silk Route.
- . This, in turn, raises India's concerns in the region, giving the country reason to work towards building closer relations with the island states of the Indian Ocean region through organisations like the Indian Ocean Commission, in which it is an observer.

How 'NEST' will fill the present technology gap?

- œ In the technological era of the 21st century, the MEA decision to create a new division called NEST (New and Emerging Strategic Technologies) is most timely.
- œ NEST is to serve as the **nodal agency** for issues pertaining to new and emerging technologies.
- œ It will engage in technology diplomacy by ensuring collaboration with different partners in emerging fields like 5G, cloud computing, and artificial intelligence.
- œ It will help improve India's external technology policy in coordination with domestic stakeholders and in line with India's national security goals.
- œ It will also assess any international legal implications of new technologies and thus contribute to better policymaking.

What are the structural challenges in this policy sector?

- œ **Infrastructure issues:** In this emerging new world, the Ministry of External Affairs (MEA) can no longer maintain its Cold War-era institutional infrastructure.
- œ **Over burdened:** The Secretaries of each department and the Cabinet Minister have been overworked, the Additional Secretaries carry the burden of daily administrative tasks and no new policies and actions can be discussed.
- œ **Outdated practices:** The ministry's management and functioning structure remains out of sync with modern-day practices when the world has moved on from the Cold War era.

What should be India's further approach?

- œ **Strengthening institutional infrastructure:** Getting the institutional design right is key for effective policymaking and given the scale and scope of global transformation.
- œ **Management of differences:** The country must seek greater alignment based on converging interests with the U.S., soft balancing through management of differences with China.
- œ **Cooperation with middle powers:** Cooperation with middle powers to maintain a regional order that does not pose a strategic challenge to India.
- œ **Synergy in coordination:** The multilateral organisations and summits' vertical will have to be in coordination with other ministries and federal units, to ensure synergy in their efforts.
 - > **For example,** India's Intended Nationally Determined Contributions (INDCs) in accordance with its commitments to the Paris Climate Agreement, need to be worked out by the Ministry of Environment, Forests and Climate Change, and the Ministry of New and Renewable Energy.
 - > Only then will this vertical be able to represent India in a more informed manner in future summits.
- œ **Improving relations with South Asian nations:** Similarly, issues related to India's relations with its South Asian neighbours should be addressed by individual federal units to remain updated on the various activities that are happening across the country's borders, including the BBIN corridor (Bangladesh-Bhutan-India-Nepal).
 - > The likelihood is that there will be a push for the development activities being taken up by the countries of SAARC (South Asian Association for Regional Cooperation) and BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation).

© WRAPPING UP

Through its seven verticals, the MEA seems to be focusing on soft-power diplomacy, neighbourhood-focused development, enhancing India's profile in multilateral groups and international summits apart from countering adversaries. The aim of the restructuring is to ensure that these objectives are achieved in a much more synergistic fashion than in the past.

HATE SPEECH REPUDIATES RIGHT TO EQUALITY: SC

CONTEXT

- The concept of “hate speech” was highlighted in the recent judgement given by the Supreme Court in the case **Amish Devgan v/s union of India**.
- The judgment delivered by a bench comprising Justices A M Khanwilkar and Sanjay Khanna discussed the distinctions between “hate speech” and “free speech”, the need to criminalise “hate speech” and how it repudiates the right to equality.

◎ BACKGROUND

- œ The Supreme Court refused to quash multiple FIRs in the case against **journalist Amish Devgan** for his alleged defamatory remarks against **Sufi saint Khwaja Moinuddin Chisti**, observing that “persons of influence, keeping in view their reach, impact and authority... owe a duty and have to be more responsible”.
- > *News18* anchor Devgan made the alleged defamatory remarks against the Sufi saint in his news debate show, ‘Aar Paar’, on 15 June this year.
- > Seven FIRs were filed against Devgan in Rajasthan, Telangana, Maharashtra and Madhya Pradesh.

Who was Sufi saint Khwaja Moinuddin Chisti?

- According to History, Khwaja Moinuddin Chishti was a **13th-century Sufi mystic saint** and philosopher who travelled across South Asia, before eventually settling in Ajmer, where he died.
- Khwaja Moinuddin Chishti passed away in 1236 AD. He was almost 114 years old and his sacred mortal remains are what constitute his tomb in Ajmer Sharif Dargah.
- Among the Sufi shrines, the shrine of Sufi saint Moinuddin Chishti in Ajmer is one of the most popular.

- œ The SC refused to quash multiple first information reports (FIRs) against Amish Devgan.
- œ The Court observed that “persons of influence, keeping in view their reach, impact and authority... owe a duty and have to be more responsible”.
- œ The judgment states that it is necessary to draw a difference between “free speech” and “hate speech”
- œ The court observed that the object of criminalising hate speech is to protect the dignity of an individual and to ensure political and social equality between different identities and groups regardless of caste,

creed, religion, sex, gender identity and linguistic preference etc.

- œ The court clarified that dignity, in this context of hate speech, it does not refer to any particular level of honour or self respect as an individual.

◎ ANALYSIS

What is Hate Speech?

- œ Hate speech constitutes a criminal charge under **Section 153A**, which is the offence of promoting communal disharmony or feelings of hatred between different religious, racial, language or regional groups or castes or communities.
- œ 153B of the Indian Penal Code categorises the offence of promoting religious, racist, linguistic, community or caste hatred or incites any religious, caste or any other disharmony or enmity within India, through any speech either in written form or spoken.

United Nations on Hate Speech

- According to the **United Nations**, ‘hate speech is defined as any kind of communication in speech, writing or behaviour, that attacks or uses pejorative or discriminatory language with reference to a person or a group on the basis of who they are, in other words, based on their religion, ethnicity, nationality, race, colour, descent, gender or other identity factors.’

How is it regulated in India?

- œ **Section 298** of the IPC, similarly, classifies the offence of uttering words with the deliberate intent to wound the religious feelings of any person.
- œ Likewise, **Section 505** of the IPC, criminalises the act of delivering speeches that incite violence.
- œ **Sections 295A** and **509A** also have similar provisions.
- œ The **123(3A) of the Representation of the People Act, 1951**, also criminalises hate speech by election candidates.
- œ In 2014, while addressing a Public interest Litigation

seeking guidelines for regulating Hate Speech, the Supreme Court made certain observations.

Important SC Judgements

- **Shreya Singhal v. Union of India:** Issues were raised about Section 66A of the Information Technology Act, 2000 relating to the fundamental right of free speech and expression guaranteed by Article 19(1) (a) of the Constitution, where the Court differentiated between discussion, advocacy, and incitement and held that the first two were the essence of Article 19(1).
- **Arup Bhuyan vs State of Assam:** The Court held that a mere act cannot be punished unless an individual resorted to violence or inciting any other person to violence.
- **S. Rangarajan Etc vs P. Jagjivan Ram:** In this case, the Court held that freedom of expression cannot be suppressed unless the situation so created are dangerous to the community/public interest wherein this danger should not be remote, conjectural or far-fetched. There should be a proximate and direct nexus with the expression so used.

- œ However, under the guise of exercising intrinsic rights, many perpetrate the crime of hate speech, giving rise to an air of distrust, and terror.
- œ It must be understood that liberty is there for everyone.
- œ If in the name of free speech, a Hate Speech is given which marginalizes certain persons, then the liberty of those is taken away.

Law Commission of India on 'liberty' and 'freedom of speech

- In the **267th Report** of Law Commission of India, it was stated that
- *"Liberty and equality are contemporary and not antithetical to each other. The intention of having the freedom of speech is not to disregard the weaker sections of society but to give them an equal voice. The intent of equality is not to restrain this liberty but to balance it with the necessities of a multicultural and plural world, provided such constraint does not unduly infringe on the freedom of expression. Thus, incitement to not only violence but also to discrimination has been recognized as a ground for interfering with freedom of expression."*

What are the elements of hate speech?

- œ The SC judgement elucidated three elements of hate speech that legislatures and courts can use to define and identify hate speech:
 - > Content-based element
 - > Intent-based element
 - > Harm-based element (or impact-based element)

What is the difference between hate speech and freedom of speech?

- œ The Indian Constitution, under **Article 19(1)** (a) provides the right to freedom of speech and expression.
- œ However, under **Article 19(2)**, the constitution also provides for the **reasonable restrictions against free speech** in the interests of sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality or in relation to contempt of court, defamation or incitement to an offence.
- œ Hate speech is considered a **reasonable restriction on freedom of speech and expression**.

Will the reasonable restriction take away the liberty of an individual?

- œ The critics of restricting freedom of speech often argue that it would amount to taking away the liberty of an individual.

Is there any International Law regime around Hate Speech?

- œ International human rights law has set standards by which states are supposed to adhere to strong directives against hate speech in their respective jurisdictions.
- œ Even though the essential right to free speech is a fundamental right, it also has certain reasonable restrictions that go with it.
- œ **International Covenant on Civil and Political Rights (ICCPR):** As per **Article 19(3)** of the **ICCPR**, the right of freedom of speech can be regulated in order to honour the rights of others and in the interest of public order, public health or morals.
 - > Article 20(2) of the ICCPR also declares that any advocacy of national, racial, or religious hatred that constitutes incitement to discrimination, hostility or violence shall be prevented by law.
- œ **European Convention on Human Rights:** Similarly, **Article 10(2) of the European Convention on Human Rights**, provides reasonable duties and restrictions during the exercise of one's fundamental right to free speech.
- œ **United Nations Strategy and Plan of Action on Hate Speech:** The United Nations Strategy and Plan of Action on Hate Speech provides that member states must identify and support actors who challenge hate speech. They are also mandated to build capacity and develop policies to address hate speech.

œ **Rabat Plan of Action:** The Rabat Plan of Action, that was adopted by experts after a series of consultations that were convened by the United Nations Office of High Commissioner for Human Rights (OHCHR) derived authoritative conclusions and strong recommendations for the implementation of Article 20(2) of the ICCPR.

© **CONCLUDING THOUGHTS**

Hate speech needs to be understood as the starting point or origin of marginalizing a particular class of persons under 'fear of threat'. It should not be protected in the name of freedom of speech, otherwise, it will lead to violation of principles on which Indian democracy is built on.



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POLICY RESPONSES TO SMOKELESS TOBACCO (ST) IN INDIA DURING THE COVID19 PANDEMIC'

CONTEXT

Smokeless tobacco products use is increasingly becoming a serious health issue in India.

◎ BACKGROUND

- œ India is amongst the world's largest consumers of tobacco in widely varied smoked and smokeless forms.
- œ India has the second largest number of tobacco users (268 million) in the world.
- œ Nearly 1.2 million Indians die every year from tobacco-related diseases, of which 1 million deaths are due to smoking, over 200,000 due to second hand smoke exposure, and over 35,000 due to smokeless tobacco use.
- œ Nearly 27% of all cancers in India are due to tobacco usage. The total direct and indirect cost of diseases attributable to tobacco use was a staggering Rs 1,82,000 crore which is nearly 1.8% of India's GDP.

◎ ANALYSIS

What is smokeless tobacco?

- œ Smokeless tobacco (SLT) is defined as a product that contains tobacco, is not smoked or burned at the time of use, and commonly consumed orally or nasally.
 - > Some of the popular products in India include *khaini*, *gutkha*, *zarda*, betel quid with tobacco, tobacco tooth powder, tobacco toothpaste, etc.
- œ These products can be placed in the mouth, cheek or the lip and are sucked or chewed.

• Harmful Chemicals

- > Smokeless tobacco contains nicotine, which is highly addictive.
- > Smokeless tobacco is also known to contain 28 carcinogens, including very high levels of tobacco-specific nitrosamines (TSNAs).
 - . TSNAs are known to be some of the most potent carcinogens present in chewing tobacco, snuff and tobacco smoke.
- > Other cancer-causing substances in smokeless tobacco are known to include:
 - . Formaldehyde
 - . Arsenic
 - . Cadmium
 - . Radioactive polonium-210

The burden

- . Smokeless tobacco (ST) products constitute the dominant form of tobacco consumption in the country.
- . It has been estimated that ST use resulted in over 350,000 deaths in India in 2010, and nearly three-fifth of these deaths occurred among women.
- . Although well over 100 countries across the world report the use of different ST products among adults.
- . 85 percent of the ST-related disease burden from conditions such as oral cancer and cardiovascular disease are faced by populations in South and Southeast Asia.
- . India alone accounts for 70 percent of the global ST-related burden from these serious and often life-threatening diseases.

Why it is widely consumed?

- œ **Early initiation to smoking:** At present, 18 is the minimum age of purchasing tobacco products, which leads to early initiation to smoking.
- œ **Easy availability and affordability:** Easy availability and affordability of ST products compared to smoking products and restrictions on smoking in public places have intensified the ST consumption.
- œ **Socially acceptable:** Unlike smoking, which is generally considered a taboo, ST use is more socially acceptable, especially for women in the country.
- œ **Cultural issue:** Many ST use practices are also imbibed within the region's culture and tradition and tend to be passed down from one generation to another.
 - > In some slum dwellings in New Delhi, children as young as six years of age have been found to be regular users of ST products

What are the health effects of smokeless tobacco?

Smokeless tobacco is associated with many health problems. Using smokeless tobacco:

- œ **Addiction:** It can lead to nicotine addiction. It can cause nicotine poisoning in children
- œ **Cancer:** It can cause cancer of the mouth, esophagus, and pancreas
- œ **Mouth disease:** It is also associated with diseases of the mouth
- œ **Pregnancy issues:** It can increase risks for early delivery and stillbirth when used during pregnancy
- œ **Risk for death:** It may increase the risk for death from heart disease and stroke

What are the policy responses in India?

Recognising the harmful risks, several policy responses relevant to ST control have been put forth in India since March 2020 to mitigate the spread of COVID-19. These started with sub-national orders in some states and districts to prohibit the regional manufacture and sale of ST products.

- œ **Nation-wide appeal:** In April 2020, the Indian Council of Medical Research (ICMR) issued a nation-wide appeal, asking the general public to refrain from consuming ST and spitting in public places.
- œ **Making spitting, a punishable offence:** In the same month, the Indian government issued a national directive for COVID-19 management, which specified public spitting as a punishable offence that would incur fines. Since spitting usually accompanies ST consumption, this applied directly to ST use practices.
- œ **Prohibiting the use:** States and union territories (UTs) were also given additional authority under the Epidemic Disease Act 1897, the Disaster Management Act 2005, and under various provisions of the Indian Penal Code (IPC) 1860, to prohibit use of ST and spitting in public places during the pandemic.

However, tracking of these different policies at the state level against the pandemic timeline has not been carried out till date.

How States control the usage of ST?

- œ **Pan-India ban:** Beginning in 2012, all states in India banned the manufacture, sale and distribution of the ST product, *gutkha*, under an Act issued by the Food Safety and Standards Authority of India (FSSAI).
 - > According to this Act, *gutkha* was defined as a food product, and should therefore not contain any tobacco.
 - > In some states, this ban also extended to other oral products containing tobacco.
- œ **Stricter implementation:** In the wake of the pandemic, there seem to be provisions for stricter

implementation of these existing measures. For example-

- > Maharashtra has allowed the state police to register a non-bailable offence against the sale and purchase of *gutkha* and flavoured tobacco, which has been made possible under provisions of the IPC and other additional Acts mentioned in the last section.
- > In Uttar Pradesh, the ban was briefly extended to *paan masala* without tobacco but lifted in May 2020.
- > While the central government had also issued nation-wide prohibitions on all ST sales in public places during the second phase of the national lockdown, states were able to reopen ST vends during the third phase.
- > In Rajasthan, the rationale provided for this change was that the prohibition was leading to an increase in the black market for tobacco and that livelihoods of the poor were getting affected.
- œ Unlike an existing ban on smoking in public places, public use of ST was not banned in India, with the exception of some states – **Maharashtra became the first state in India to ban the use of ST** in public places in 2014; in some states like UP, the ban was for certain public places such as government offices, etc.
- œ However, in dealing with the pandemic, there now seems to be a uniform ban on all public use of ST across all states since April 2020.
- œ While policies against public spitting (including ST) existed pre-COVID in many local jurisdictions, these now seem to uniformly extend to all states, keeping in line with the advisory issued by the Ministry of Health and Family Welfare in April 2020.
- œ Recently, the Jharkhand government has made it mandatory for its employees to file affidavits stating that they will not consume tobacco in any form.

WHO Framework Convention on Tobacco Control (WHO FCTC)

- œ The WHO Framework Convention on Tobacco Control (WHO FCTC) is the first international treaty negotiated under the auspices of WHO.
 - œ It entered into force on 27 February 2005. It has since become one of the most rapidly and widely embraced treaties in United Nations history.
- œ The WHO FCTC was developed in response to the globalization of the tobacco epidemic and is an evidence-based treaty that reaffirms the right of all people to the highest standard of health.

- œ The Convention represents a milestone for the promotion of public health and provides new legal dimensions for international health cooperation.
- œ India has been a Party to the WHO Framework Convention on Tobacco Control (WHO FCTC) since 2005.

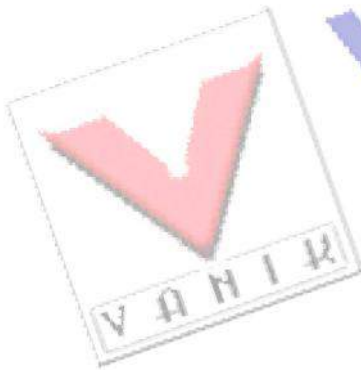
Value Addition

- . India is the world's 2nd largest producer of tobacco with an estimated annual production of around 800 million kgs.
- . Tobacco occupies a meagre 0.24% of the country's total arable land area.
- . It is grown largely in semi-arid and rain-fed areas where the cultivation of alternative crops is economically unviable.
- . Tobacco is grown in the following 13 States in India:

- | | |
|------------------|-----------------|
| > Andhra Pradesh | > Maharashtra |
| > Assam | > Odisha |
| > Bihar | > Tamil Nadu |
| > Chhattisgarh | > Telangana |
| > Gujarat | > Uttar Pradesh |
| > Karnataka | West Bengal |
| > Madhya Pradesh | |

© **CONCLUSION**

The current pandemic has changed peoples' attitudes towards the use of ST and people are now more receptive to ST control measures. A greater understanding of these aspects would be useful for informing the future direction of ST control policies in the country. The time may be right for focusing the efforts on how best to apply policy measures for effective ST control in India.



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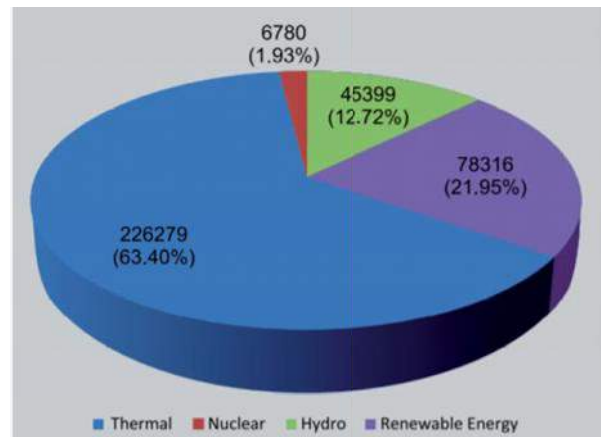
FIVE YEARS OF THE PARIS AGREEMENT: INDIA'S GREEN INVESTMENT

CONTEXT

As the world completes five years of the historic Paris Climate Agreement, India has called for greater global investment in the country's clean energy future.

◎ BACKGROUND

- œ In the five years since nearly 200 nations signed the historic Paris Climate Agreement, the world has made major progress in transitioning to clean energy.
- œ India, the world's fourth largest renewable energy market, has been one of the leaders in this transition.
- œ India has grown its renewables capacity by 250% in just the last five years and plans to expand it by another 500% to reach 450 gigawatts by 2030.
- œ However, to meet India's ambitious climate goals a huge increase in investment is required.
- œ Today, the world's third largest greenhouse gas emitter, India is also one of the most vulnerable countries when it comes to the adverse impacts of climate change.
- œ Investing in a green economy can accelerate recovery from the public health crisis, reduce air pollution, and help avert climate disasters such as draughts, extreme heat waves, and coastal flooding already taking a toll on life and health in the country.



- œ As per 2019's annual report published by the Ministry of New and Renewable Energy (MNRE) – Government of India (GOI), thermal power plants accounted for a little over 63% of the total installed power capacity in the country at the end of 2018-19 fiscal year.
- œ Thermal power was followed by contributions from renewables other than hydro power at 21.95%, further followed by hydro power and nuclear power – standing at 12.72% and 1.93% of the total installed electricity capacity, respectively.

◎ ANALYSIS

What are India's goals?

- œ As a signatory to the Paris Climate Agreement, India is committed to increasing its share of renewable energy capacity to 450 GW by 2030.
- œ As of September 30, 2020, India has an installed renewable energy capacity of 89 GW.
- œ Recently, at the G20 summit, Prime Minister Narendra Modi said that India would not only meet its Paris Accord targets but will also exceed the targets.

What is India's current energy mix?

- œ India is now the 5th largest market for renewable energy in the world, 4th largest market for wind and 3rd largest market for solar in the world only behind China and US.

The progress in renewable sector

- . India ranked third in **EY Renewable Energy Country Attractive Index 2019**.
- . In 2019, India installed 7.3 GW of solar power across the country, establishing its position as the third-largest solar market in the world.
- . Installed renewable power generation capacity has increased at a fast pace over the past few years, posting a CAGR of 17.33% between FY14-FY20.
- . Power generation from renewable energy sources in India reached 127.01 billion units (BU) in FY20.
- . The renewable energy will account for 55% of the total installed power capacity by 2030.
- . As of September 30, 2020, the installed renewable energy capacity stood at 89.22 GW, of which solar and wind comprised 36.05 GW and 38.12 GW, respectively.

- . Biomass and small hydro power constituted 10.14 GW and 4.73 GW, respectively.

What has led to the growth?

The growth of the sector has been largely driven by a gamut of factors such as

- œ favourable policy and regulatory framework for accelerated growth of renewable
- œ providing incentives and subsidies for faster adoption
- œ streamlining the approvals and clearance processes for land
- œ regulatory and connectivity approvals

Why the focus is on renewable energy?

- œ **No or low greenhouse gases:** The combustion of fossil fuels for energy results in a significant amount of greenhouse gas emissions that contribute to global warming. Most sources of renewable energy result in little to no emissions.
- œ **No or low air pollutants:** Instead of polluting the environment, renewable energy meets the objectives of a circular economy.
- œ **Low costs:** Renewable energy is less affected by geopolitical crises, price spikes or sudden disruptions in the supply chain, as it is often produced locally.
- œ **Employment generation:** The largest part of renewable energy investments is spent on materials and workmanship to build and maintain the facilities, rather than on costly energy imports.
- œ **Accessibility:** In many parts of the world, renewables represent the lowest-cost source of new power generation technology, and costs continue to decline. Especially for cities in the developing world, renewable energy is the only way to expand energy access to all inhabitants, particularly those living in urban slums and informal settlements and in suburban and peri-urban areas.

Resilient, dispatchable and adaptable

- . Now amidst the current pandemic situation, one of the segments that has not been affected or the least affected by it has been the renewable energy segment and rightly so.
- . Renewable Energy has defied the difficulties caused by the pandemic, proving robust growth versus other conventional power sources as the whole process of power generation in renewable energy generation is automated with no physical supply of fuel.

- . This has proven that renewable energy is resilient, dispatchable and adaptable and is definitely the future of energy.

What challenges are interrupting the growth?

Whilst the renewable energy sector in India has become both infrastructurally and financially healthy in the past 10 years, it also needs to overcome a few challenges to ensure continued growth.

- œ **Uncertainty of energy source:** The intermittent nature of wind and solar pose a challenge in integrating their assets into the grid and in ascertaining grid stability.
- œ **At the mercy of nature:** While conventional power plants—that are coal-based or large hydro—have the ability to vary the generation as per need, renewable generation is more at the mercy of nature.
- œ **Lack of access to energy:** There is the challenge of access to energy. The fact is that even as the grid reaches everywhere, the light does not.

How is the situation globally?

- œ As per the **International Energy Agency's Renewables 2020 report**, driven by China and the United States, net installed renewable capacity will grow by nearly 4% globally in 2020, reaching almost 200 GW.
- œ Globally, renewables are expected to overtake coal and become the largest source of electricity generation in 2025 and may supply one-third of the world's electricity.
- œ Hence, this growing focus and shift towards renewable energy underline the relevance and importance of the green energy markets more than ever before.

What are recent Government initiatives to boost renewable energy sector?

Some initiatives by Government of India to boost India's renewable energy sector are as follows:

- œ In August 2020, the government announced plans to offer land near its ports to companies for building solar equipment factories.
- œ India plans to add 30 GW of renewable energy capacity along a desert on its western border such as Gujarat and Rajasthan.
- œ Rajasthan Government, in Budget 2019–20, exempted solar energy from electricity duty and focused on the utilization of solar power in its agriculture and public health sectors.
- œ The Government of India has announced plans to

implement a US\$ 238 million **National Mission on advanced ultra-supercritical technologies for cleaner coal utilisation.**

- œ Indian Railways is taking increased efforts through sustained energy efficient measures and maximum use of clean fuel to cut down emission level by 33% by 2030.
- œ **Real-time electricity market:** India's recently launched **real-time electricity market**, coupled with the green market, offers a significant opportunity to integrate renewable energy in the most efficient and competitive manner.
- œ **High Efficiency Solar PV Modules:** The Union Cabinet recently approved Rs 4,500-crore PLI scheme for 'High Efficiency Solar PV Modules'. This money would be disbursed by to the nodal ministry of new and renewable energy (MNRE). The move is expected to give a boost to domestic manufacturers.

What is the need of the hour?

- œ **Scale up investment:** India needs to significantly scale up investment if it has to meet its goals of increasing renewable energy capacity fivefold to reach 450 gigawatts by 2030.
- œ **Robust green market:** With the increasing penetration of renewable power, a robust green market is required to address the intermittency issues linked with green power adoption.

- œ **Policy efforts:** In particular, the country require concerted policy effort, including on the following:
 - > demand creation for renewable energy
 - > revenue certainty for renewable energy power projects
 - > risk reduction for development, construction, and operation of these projects
 - > system integration of variable and intermittent renewable energy supply
- œ **Goal oriented measures:** Going forward, the introduction of new segments such as green day-ahead market, long-duration green contracts, contract for difference (CfD), etc, will play a crucial role in furthering sustainability goals.
- œ The new segments will also ensure that all the renewable energy generated within the country is dispatched in the most efficient manner through a pan India wide exchange-based energy markets.

© CONCLUSION

India's renewable energy expansion has helped bring down the costs of renewable energy worldwide. The country needs much more of the catalytic financial innovations for attracting private investment at required scale. Increasing clean energy investment in India is essential to achieve, and go beyond, its Paris Agreement goals and help the world stay on course to limiting warming to the levels where we still have a future.



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ETHICS IN MEDIA: A THING OF THE PAST?

CONTEXT

Democracy cannot be successful without free press or media, which is very essential, as it is the voice of the people. But media shall not fall as a victim to some monetary or any other temptations, and shall keep on honestly serve the people.

◎ BACKGROUND

"Were it left to me to decide whether we should have a government without newspapers, or newspapers without a Government, I should not hesitate a moment to prefer the latter."

-Thomas Jefferson

- œ Media is considered as the fourth pillar of democracy and as such, it plays a great role in the overall development of the country. It is considered as the backbone of a country as it provides overall information regarding different aspects like political, economic, and social.
- œ Ethics is a branch of philosophy that deals with what is right and what is wrong based on moral values.
- œ If we talk of media, ethics have forms the basis of journalism as people form perceptions based on the things which they see over media.
- œ With technological developments, ethical practices in Indian media are facing continues challenges. It has become common things of denoting media companies as one belonging to the left-wing or the right-wing.
- œ Media trials have also evolved as one of the greatest challenges faced in this country directly affecting the judicial system of the country.

◎ ANALYSIS

How India media expanded?

- œ *The Bengal Gazette* was the first news paper which was started by James Augustus Hickley in year 1780 in India.
- œ This was followed by the publication of newspapers like *The India*, *The Calcutta Gazette*, *The Madras Gazette Courier* and *Bombay Herald* in the coming years.
- œ But after the **first freedom struggle of 1857**, the number of newspapers that appeared in different languages of India continued to grow.
- œ At the time of this freedom struggle, the media expansion in India was not so much that its news could reach the corners of the country through newspapers.

- > But some UK newspapers had published detailed reports on this first war of independence.
- > However, the news was first delivered to Bombay via Telegraph and then transported to London and it used to take several weeks.
- œ Since then the media has been emerging in various forms.

Media and Ethics:

With the evolving time, the ways through which media shares its views, opinions, facts and information is also increasing. Now information is shared in many ways – through websites, WhatsApp groups, YouTube channels, television channels, newspapers, magazines, mobile & computer applications etc. India has evolved to be one of the biggest media markets in the world. However, major issues remain to be solved:

- œ **Low standards of coverage:** The particular elements of news composing are exactness, accuracy, absence of prejudice, objectivity and open responsibility. Yet these "standards of news coverage" has gone under genuine dangers lately.
- œ **Ignored code of ethics:** The news associations and the journalists and telecasters neglect and infrequently ignore the "code of ethics" in the procurement of newsworthy data and its consequent spread to general society.
- > Most journalistic code of ethics contains the rule of "limitation of harm".
 - . This includes the withholding of specific points of interest from news reports like the names of minor kids, wrongdoing casualties or data not applicable to specific news reports, the arrival of which may damage somebody's notoriety or life or obstruct the capacity of the organization.

What are the Ethical Principles of Journalism?

. Obligated to deliver the truth:

- > It depends on the citizens of a democratic nation to have correct facts on which they can rely. The so called journalistic truth starts off with gathering and testing the facts.

- > Journalists should try their best convey the news without any bias and without subjecting it to their personal opinion.

. Answerable to the public:

- > In the field of journalism, the primary answerability is to the citizens, not to the sponsors, the shareholders etc, because this is what makes it the medium of public interest.
- > Following this commitment make the news channel more credible and certainly adds to its good will.

. Verification is a necessity:

- > What news is to be presented to a large extent is based on how verified it is.
- > Without verification, there will always be hint of personal opinion of the journalist in the news article.

. Independence:

- > Independence is the corner stone of the trust in Journalism. Independence is what provides a sense of impartiality.

. Present significant and relevant news:

- > Journalism is not just a piece of story; it is a story with a meaningful motive. It is beyond attracting audience.
- > It should constantly scrutinize itself and decide what is meaningful enough to be presented.

What are the Ethical Issues with Indian media?

- œ **Paid news:** It is one of the biggest threats to journalism. The origins of the unethical practice of paid news can be trace back to the liberalisation of the Indian economy in 1991. With market forces at play and public investment in private companies, journalists found it sometimes lucrative to write only partially true stories of companies waiting to list on the stock exchanges.
- œ **Media Trail:** Media trial can be defined as a trial parallel to the court of law in which the media house declares a person innocent or guilty before the final judgment of the court based on debates and discussions.
- œ **Sidelined real issues:** The media often portray non-issues as real issues, while the real issues are sidelined. The real issues in India are economic, that is, the terrible economic conditions in which 80 per cent of our people are living, the poverty, and unemployment, lack of housing and medical care and so on. Instead of addressing these real issues, the media often try to divert the attention of people to non-issues.

- œ **Lack of transparency:** India is one of the biggest media markets. Only a few people control the ownership. The transparency in the innerstructure of media organizations is dwindling, putting the credibility of media at stake.
- œ **Opaque private treaties:** There has been growing nexus of politicians and corporate entities in the news media through such schemes. Indian media today are trapped by power centres, business tycoons and Indian state authorities converting their role of watchdog to lapdog.
- œ **Widening legal regulatory gap:** The Press Council of India has dragged its feet on addressing paid news and other unethical practices. There have been growing practices of advertisements being published as news for a fee. This has severely affected their credibility.
- œ **Flawed measurements of audience reach and readership:** The yardsticks to measure the reach and impact of the Indian media are dubious. Television ratings also fail to tell the real picture.

What measures should be adopted to reform Indian media?

- œ **Bringing responsibility in media:** The government should strive to establish a working environment in which journalists understand their responsibility as people who work in the industry and as citizens in democracy, applying judgment and ethical standards in their reporting, and self-scrutinize and self-control their activities.
- œ **Transparency in the functioning:** The Press Council should publicize itself, its powers, its work and its adjudication so as to make itself known to the public and to gain its trust.
- œ **Adopting code practices:** Freelance journalists should make themselves familiar with the respective code for practice of the newspaper for which they are writing.
- œ **Undertaking oath:** Journalists should adopt their own Journalist oath, in the same manner as the Hippocratic Oath in medicine.

© CONCLUSION:

Media is the most common mode of carrying forward the public opinion and also keeping the public informed. It is thus important that media acts with a sense of responsibility. The media should keep its opinion objective, free from and prejudice or bias. It should try and explore all the possibilities and point of views. Undoubtedly free media is a pillar of democracy. One of its roles is to watch what the Government does; the media will not be able to perform this duty if it is under the government's control. But it is essential for the media to take some concrete measures to improve their conduct.



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SECTION: B
(PRELIMS)
CURRENT AFFAIRS

GEMINIDS METEOR SHOWER

◎ **CONTEXT:** The Geminids meteor shower, believed to be the strongest of the year, was active from December 4-December 20.

◎ **ABOUT:** What is Geminids Meteor Shower?

- . The Geminids Meteor Shower is believed to radiate from the **Gemini constellation**, from where it gets the name.
- . The parent of the Geminids is **3200 Phaethon**, which is arguably considered to be either an asteroid or an extinct comet.
 - œ Discovered on October 11, 1983, the asteroid is over 5 km in diameter and was named after the Greek myth of Phaethon, the son of Sun god Helios.
- . When the Earth passes through trails of dust, or meteoroids, left by 3200 Phaethon, that dust burns up in Earth's atmosphere, creating the Geminid meteor shower.
 - œ All meteors associated with a shower have similar orbits, and they all appear to come from the same place in the sky, which is called the **radiant**.
- . Geminids travel 35 km/s - which is over 1,000 times faster than a cheetah, about 250 times faster than the swiftest car in the world, and over 40 times faster than a speeding bullet.

Meteor shower

- . Meteors are bits of rock and ice that are ejected from comets as they manoeuvre around their orbits around the sun.
- . Meteor showers are witnessed when Earth passes through the trail of debris left behind by a comet or an asteroid.
- . When a meteor reaches the Earth, it is called a meteorite and a series of meteorites, when encountered at once, is termed a meteor shower.
- . As meteors fall towards the Earth, the resistance makes the space rocks extremely hot and, as meteorites pass through the atmosphere, they leave behind streaks of glowing gas that are visible to the observers and not the rock itself.

How it started?

- . The Geminids first began appearing in the mid-1800s. However, the first showers were not noteworthy with only 10 - 20 meteors seen per hour.
- . Since that time, the Geminids have grown to become one of the most major showers of the year.
- . During its peak, 120 Geminid meteors can be seen per hour under perfect conditions.

50th ANNIVERSARY OF 1971 INDIA-PAKISTAN WAR

◎ **CONTEXT:** India is observing the 50th anniversary of the 1971 War with Pakistan, also known as the Bangladesh Liberation War.

◎ **ABOUT:**

- . The War was fought under the leadership of then-Prime Minister Indira Gandhi and chief of army staff (COAS), General Sam Manekshaw.
- . On 25 March 1971, the Pakistan Army, led by Lieutenant General Tikka Khan, launched **Operation Searchlight** to quell the rebellion in East Pakistan.

- œ Massive human rights violations were reportedly perpetrated by the Pakistan Army during this operation.
- . The hostilities between India and Pakistan formally began on **December 3, 1971**, when the Pakistan Air Force (PAF), launched pre-emptive air strikes on 11 Indian airfields.
- . Addressing the nation the same evening, PM Indira Gandhi called the air strikes **“declaration of war against India.”**
- . While the Indian Air Force (IAF) responded with initial retaliatory strikes the same night, PM Gandhi ordered a “full-scale” invasion of Pakistan.
- . Thus officially commenced the Indo-Pakistani war of 1971.

What led to the war?

- . The conflict took place in the backdrop of tensions between Pakistan (also known then as West Pakistan) and the Bengali majority East Pakistan, which was closer to India than it was to Pakistan.
- . The Bangladesh Liberation War was going on for months as the Bengali nationalists and Mukti Bahini guerrillas in East Pakistan fought to break away from the dominance of West Pakistan.
- . India entered the war only after Pakistan Air Force (PAF) conducted aerial strikes on 11 Indian air stations.
- . The war spread out across the eastern and western fronts.
- . All three divisions of the Indian Armed Forces – Army, Navy and Air Force – engaged in clashes with their Pakistani counterparts.

Outcome of the war

- . The war came to an end in less than two weeks on December 16, 1971, with the Eastern Command chief of the Indian Army, Lt Gen JS Aurora, making the Eastern Command chief of the Pakistan Army, Lt Gen AAK Niazi, sign the **instrument of surrender**.
 - œ As a result of the surrender, around 93,000 Pakistani troops were taken as prisoners of war (PoW) by India.
- . The 13-day duration of the war also makes it one of the shortest wars in history.
- . The war ended with a decisive victory for India, and resulted in the creation of Bangladesh, which was then known as East Pakistan.
 - œ East Pakistan became **Bangladesh**, with Awami League leader, Sheikh Mujibur Rahman, becoming its first President in January 1972, as well as its second prime minister in 1974. Mujib, who was assassinated in 1975, is the father of current Bangladesh PM Sheikh Hasina.

Where do Delhi-Dhaka ties stand now?

- . With Bangladesh, India’s relations are robust and progressing well. However, there remains some issues.

Some unresolved issues are:

- . **Border issue:** The border remains sensitive.
- . **Water issue:** Water remains another difficult issue. Bangladeshis have observed the tug-of-war on the Teesta water-sharing issue between the Centre and state.
- . **Citizenship issue:** India’s controversial Citizenship (Amendment) Act (CAA) and National Register of Citizens (NRC) have created a negative impression in Bangladesh of India’s intent.
- . **China factor:** The China factor also adds another dimension to the ties.

Despite some domestic scepticism, both countries understand the importance of cultivating strong bilateral relations.

Where does India's Pakistan policy stand?

- . Pakistan has always been an important part of national politics – a position that flows not only from history but also Islamabad's continued support for terror activities.
- . India-Pakistan relations in the Modi years hit a nadir as militants attacked an Indian Army brigade headquarters in Uri, Kashmir on September 18, 2016 killing 17 soldiers.
 - œ In response, India troops crossed the Line of Control on September 29.
- . In February, 2019, over 40 Central Reserve Police Force jawans were killed in Pulwama, Kashmir by a car bomber – one of the deadliest attacks on security forces in India.
 - œ 12 days later, on February 26, Indian Air Force crossed into Pakistan for what the government called a "non-military preemptive strike" on a terrorist camp of the Jaish-E-Mohammed, which had taken responsibility for the Pulwama attack.

GENDER VIOLENCE DROPS, BUT PREVALENCE REMAINS HIGH IN BIGGER STATES: NFHS-5

◎ CONTEXT:

Gender-based violence across most Indian states declined in the past half-a-decade, according to the latest National Family Health Survey (NFHS). However, the prevalence remains high in bigger states.

◎ ABOUT:

- . Factsheets for the 22 states surveyed in the first round of NFHS-5 were recently released by the Union Ministry of Health and Family Welfare.
- . The factsheets analyzed domestic violence under three categories: Married women between 18 and 49 years who have ever experienced:
 - œ Spousal violence (both physical and sexual violence)
 - œ Physical violence during pregnancy
 - œ Young women aged between 18 and 29 years who experienced sexual violence by age 18

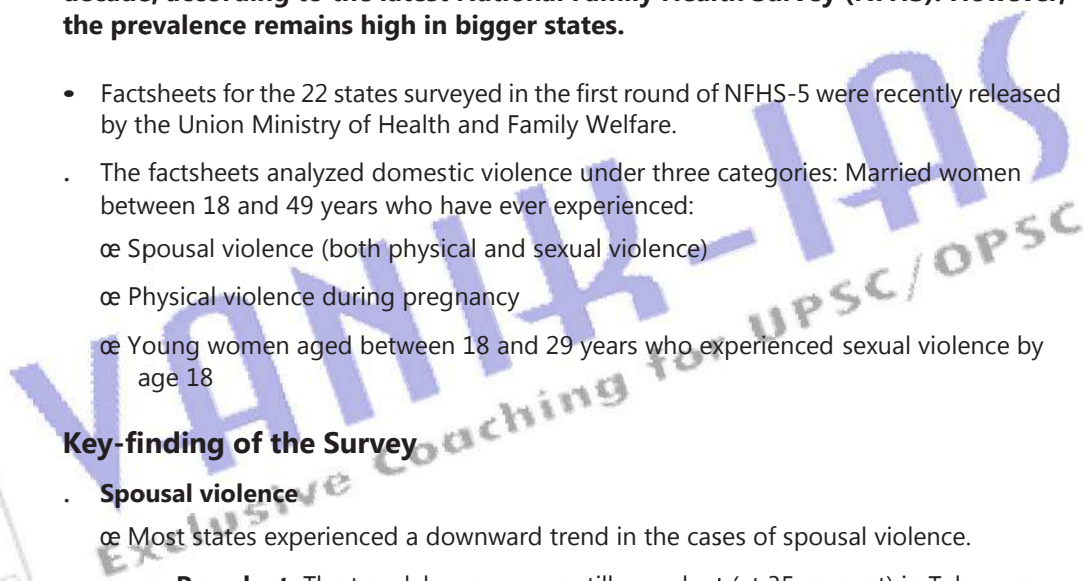
Key-finding of the Survey

. Spousal violence

- œ Most states experienced a downward trend in the cases of spousal violence.
 - > **Prevalent:** The trend, however, was still prevalent (at 35 percent) in Telangana, Manipur, Bihar and Karnataka.
 - > **Maximum rise:** Karnataka, Sikkim and Assam saw the maximum rise in spousal violence in the last five years.
 - > **Significant hike:** Himachal Pradesh and Maharashtra also reported significant hike in prevalence of spousal violence
 - > **Unchanged:** the figures for Jammu and Kashmir remained unchanged
 - > **Reduction:** Manipur, Andhra Pradesh, Sikkim and Meghalaya witnessed a steep reduction in spousal violence
 - > **Equal prevalence in urban and rural area:** Bihar, Kerala and Mizoram reported almost equal prevalence among rural as well as urban areas.

. Physical violence during pregnancy

- œ 17 of the 22 surveyed states / UTs showed a positive decline in cases of physical violence against women during their pregnancy.



- > **Highest fall:** Telangana reported the highest fall in such cases followed by Bihar, while Andaman saw the maximum overall decline of three per cent since 2015-16.
- > **Maximum rise:** The maximum rise in cases was led by three north-eastern states of Meghalaya, Sikkim and Assam followed by Maharashtra.
- > **Least violence:** Nagaland and Kerala continued to witness the least violence, i.e. the prevalence there was less than 0.5 per cent.
- > **Highest percentage:** However, despite a huge fall, Karnataka and Telangana had the highest percentage of cases at 5.8 and 4 percent respectively.
- > **Unchanged:** Goa was the only state that saw no change in its figures in the last five years.

• **Sexual violence against young women**

œ The data on young women aged between 18 and 29 years who experienced sexual violence by age 18 indicated a mixed trend: As many as nine states and union territories showed a rise in numbers amongst 22 surveyed states.

- > **Highest rise:** Goa and Maharashtra witnessed the highest rise in cases of 3.3 per cent each.
- > **Maximum reduction:** Manipur that saw the maximum reduction of 8.6 per cent in the last five years.
- > **Unsafe:** Karnataka, West Bengal and Bihar were the most unsafe places for girls.
- **High prevalence:** Bihar showed a high prevalence of violence despite the alcohol ban imposed in 2015.
- > **Least cases:** Sexual violence against young women was the least reported in Nagaland, Kerala and Mizoram.
- > **Safe rural states:** Rural girls were more exposed to violence across a majority of states except Andhra Pradesh, Meghalaya, Sikkim and Nagaland.

What led to increase in violence (sexual, physical, mental)?

The trend can be attributed to

- Poverty
- Unemployment
- Low female literacy rate
- Lower status of women in the state

Unemployment and illiteracy leads to reduced autonomy and say in family decisions by the female members.

INDIA SLIPS 17 SPOTS DOWN TO 111TH RANK

© **CONTEXT:**

A worldwide ranking of civil, economic and personal freedom, the Human Freedom Index 2020 has been released. India was placed at the 111th spot out of 162 countries. In 2019, India ranked 94 on the index.

© **ABOUT:**

What is Human Freedom Index?

- Human Freedom Index was published by **American think tank Cato Institute and Fraser Institute in Canada.**

- . The index takes into account 76 indicators of personal, civil, and economic freedoms to rank 162 countries from 2008 to 2018.
- . The institutes noted that the world has seen a notable decline in personal freedom since 2008.

Key-findings of the index

- . The first three spots have been bagged by New Zealand, Switzerland and Hong Kong.
- . The United States and United Kingdom are tied at the 17th spot on the index.
- . War-torn Syria ranked the last on the list.
- . The report finds a strong, positive relationship between freedom and prosperity, but also finds that there is an unequal distribution of freedom in the world.
- . Fifteen percent of the world's population lives in the freest quartile of countries in the index, while 34 percent lives in the bottom quartile of countries.
- . The gap in freedom between the most free and the least free countries has also been increasing since 2008.

India's position

- . Though India slipped down, it has been ranked ahead of China and Bangladesh, which ranked 129 and 139 on the 2020 index respectively.
- . India's scored
 - œ **Personal freedom:** 6.30 out of 10
 - œ **Economic freedom:** 6.56 out of 10
- . The country's overall human freedom score was 6.43.

- . The **Global Economic Freedom Index 2020** released in September showed India drop 26 spots from 79 to 105.
- . The **World Press Freedom Index**, which was released in April, saw India slip two places. India ranked 142 on the index comprising of 180 countries and territories.

INDIA SLIPS TO 131 IN HUMAN DEVELOPMENT INDEX RANKING

◎ CONTEXT:

India slipped one place further in the 2020 human development index released by the United Nations Development Programme (UNDP), ending up at 131st position out of 189 nations. India was ranked 130 in the index back in 2018.

◎ ABOUT:

What is Human Development Index (HDI)?

- . The Human Development Index is a combination of people's life expectancy at birth, expected years of schooling, mean years of schooling and a country's gross national income per capita.
- . The index is compiled by the United Nations to measure and various countries' levels of social and economic development.
- . It is composed of four principal areas of interest:
 - œ mean years of schooling expected years of schooling
 - œ life expectancy at birth

œ gross national income per capita.

Key-findings of the Index

- . India has been positioned at 131 out of 189 countries and territories.
- . Nepal and Bangladesh ranked below India, at 142 and 133 spots, respectively, while Pakistan was placed at 154.
- . Norway topped the index, followed by Ireland, Switzerland, Hong Kong and Iceland.
- . India's neighbours Sri Lanka and China ranked higher, at 72 and 85, respectively.
- . Whereas, Bangladesh (133), Myanmar (147), Nepal (142), Pakistan (154) and Afghanistan (169) were ranked lower on the list.
- . **Life expectancy:** Life expectancy of Indians at birth in 2019 was 69.7 years while Bangladesh has a life expectancy of 72.6 years and Pakistan 67.3 years.
- . **Gross National Income:** India's gross national income per capita fell to USD 6,681 in 2019 from USD 6,829 in 2018 on purchasing power parity (PPP) basis.
 - œ Purchasing power parity or PPP is a measurement of prices in different countries using the prices of specific goods to compare the absolute purchasing power of the countries' currencies.
- . **Gender inequality index:** India was placed at 123 position in the gender inequality index.
 - œ Labour force participation rate of women in the country was 20.5 per cent, while it was 76.1 per cent for men.
 - œ And only 13.5 per cent women held seats in Parliament.

Human development category

- . **Medium human development:** With a total HDI value of 0.645, India was placed in the 'medium human development' group alongside nations like Iraq, Bhutan, Ghana, Nepal and Cambodia.
- . **High human development:** Countries such as Sri Lanka, Maldives, Vietnam and China were part of the 'high human development' group.
- . **Very high human development:** Malaysia and Japan made it to the 'very high human development' list.

US PUTS INDIA BACK ON CURRENCY MANIPULATION WATCHLIST

◎ **CONTEXT:**

The US has put India on its "monitoring list" of currency manipulating countries for the third time.

◎ **ABOUT:**

- . The US Treasury Department's semi-annual report on the macroeconomic and foreign exchange policies list countries that may be intervening excessively in their foreign exchange (forex) markets to gain an unfair trade advantage.
- . The list also includes China, Korea, Japan, Italy, Singapore, Germany, Thailand, Malaysia, and Taiwan.

What is currency manipulation?

- . Currency manipulation refers to a process defined by the USDT for countries that engage in unfair currency practices to gain a trade advantage.

- . It is an attempt made by a country's central bank to decrease the value of their currency with respect to foreign currency exchange rates, the dollar, in this case.
- . To weaken its currency, a country sells its currency and buys foreign currency—usually USD.
- . This results in weak demand for the local currency and increased demand for US dollars.
- . The US Treasury Department uses three benchmarks to judge whether a country has manipulated its currency:
 - œ a **bilateral trade surplus** with the US of more than \$20 billion
 - œ a **current account surplus** of at least 3 percent of GDP
 - œ **net purchases of foreign currency** of 2 percent of GDP over 12 months

Is India really a 'currency manipulator'?

- . **Bilateral trade surplus:** As per the recent USDT report, India had a trade surplus with the US worth **\$22 billion** in the four quarters through June 2020.
- . **Current account surplus:** India's first four-quarter current account surplus was 0.4 percent of GDP, unchanged since 2004.
- . **Net purchases of foreign currency:** Further, India's net purchases of foreign currency stood at 2.4 percent of GDP. India increased its purchases of foreign currency as portfolio flows surged in the second half of 2020.

India was added to the list because it meets two of the three criteria laid down by the US Treasury.

AIR POLLUTION FACTOR IN GIRL'S DEATH

© CONTEXT:

- A United Kingdom's court recent judgment concluding air pollution exposure as one of the major causes of death of a nine-year-old girl may serve as a wake-up call for India to deal with its own high levels of pollution.

What is the case?

- . Ella, born on January 24, 2004 in Lewisham in south eastern, London, suffered from **hypersecretory asthma**, wherein a large quantity of mucus is secreted leading to blockage of intrapulmonary airways.
 - œ The quantity and quality of the mucus is also different than routine chest infections.
 - œ This led to frequent episodes of respiratory and cardiac distress, which required frequent visits to the emergency room.
- . During the course of her illness between 2010 and 2013, she was exposed to excessive high levels of nitrogen dioxide and particulate matter (PM), primarily from traffic emissions.

How this ruling can set precedent for India?

- . In India, long-term exposure to outdoor and household air pollution contributed to over 1.67 million annual deaths, across all age groups, from stroke, heart attack, diabetes, lung cancer, chronic lung diseases and neonatal diseases.
- . In India, 24 percent of infant deaths can be attributed to air pollution.
- . Out of a global tally of 6.67 million particulate matter (PM) 2.5-attributable deaths, 980,000 were recorded in India.

- Air Pollution was the fourth leading risk factor for early death worldwide in 2019, surpassed only by high blood pressure, tobacco use and poor diet.

Where does Indian court stand?

- The courts in India have been very proactive in taking cognisance of the severe health risks of air pollution and have often pushed for “immediate solutions” towards this public health crisis.
- They have frequently cited **Article 21** of Indian Constitution; Right to Life, which extends to the right to a pollution-free environment.
- With the UK judgement as a precedent, India can perhaps follow suit.

How listing air pollution as a cause of death will help?

- Despite air pollution being declared a public health emergency and its links with increased risks of the novel coronavirus disease (COVID-19), very rarely is it listed as a specific cause of death.
- Hypertension, cardiac arrests, asthma and chronic obstructive pulmonary disease (COPD) are the usual listed causes.
- Listing air pollution as a cause of death would perhaps be a non-cognisable offense, it will certainly help spread awareness among the public regarding the ills of air pollution and galvanize towards faster and decisive steps in curbing it.

CHAR DHAM PROJECT RESPONSIBLE FOR LANDSLIDE IN UTTARAKHAND?

◎ CONTEXT:

The Char Dham project, inaugurated in 2016, aims to widen roads in India's Himalayan state of Uttarakhand. However, the study of rocks in a key area where blasting is underway shows that the project is responsible for many of the landslides have been occurring recently.

◎ ABOUT:

- The project is one of the largest road-widening projects in the Himalayan region of India.
- The project aims to widen the roads to four of Hinduism's holiest shrines in the Himalayas:
 - Kedarnath
 - Badrinath
 - Gangotri
 - Yamunotri

Which area is in question?

- The area in question is **Tota Ghati** ('Parakeet Valley'), a less-than-10 kilometre stretch.
- It lies between Kodyala and Sakhni Dhar on National Highway 58 in Tehri district, Uttarakhand.
- In this stretch, the highway passes through a **complex geological terrain**, with multiple rock types and slopes susceptible to 'failures.'
 - œ A **slope failure** is a phenomenon in which a slope collapses abruptly due to weakened self-retainability of the earth under the influence of a rainfall or an earthquake.
- Tota Ghati, where there are seemingly stable rock slopes, has been in the news of late for having had a number of slope failures recently.

- . The narrow stretch of Tota Ghati is dominated by limestone and interbedded shale rocks, shattered light grey dolomite, with occasional pockets (as fracture filling) of gypsum and purple grey shale and limestone.
 - œ This is called a '**Karol formation**' in geological terms.
- . The **calcareous (calcium containing) rocks** are highly jointed (two to three sets of intersecting joints), fractured and sheared due to three 'thrusts' passing proximally to Bayasi, Shaknidhar, and Teen Dhara.
- . Field investigations reveal that Tota Ghati's rocks are widely sheared, faulted and fractured.
- . Often, the competent (strong) rock types such as quartzite also occur as shear bands and completely crushed rocks in the stretch.

COAL HERE TO STAY, BUT MEASURES CAN CUT DOWN EMISSIONS BY 22%

◎ **CONTEXT:**

Coal will continue to be the mainstay of India's power generation till at least 2030, but efforts must be made to ensure it is used efficiently to reduce greenhouse gas (GHG) emissions, according to CSE.

◎ **ABOUT:**

How big is India's coal sector?

- . India produces over 85 minerals including coal, lignite, bauxite, chromite, copper ore and concentrates, iron ore, lead and zinc concentrates, manganese ore, silver, diamond, limestone, phosphorite etc.
- . **Production and import:** India is the second-largest producer and importer of coal in the world.
- . **CO2 emission:** India's coal-based thermal power sector is one of the country's biggest emitters of carbon dioxide (CO2).
- . **GHG emission:** It spews out 1.1 gigatonne of CO2 every year; this is 2.5 per cent of global GHG emissions, one-third of India's GHG emissions, and around 50 percent of India's fuel-related CO2 emissions.
- . **Ash content:** Indian coal is known to contain 30-50% ash, meaning that for every two units of coal burned, one unit of ash could be produced.
- . Besides the creation of poisonous landfills in the ground, the burning of poor quality coal increases carbon emissions and air pollution, a danger to public health.

What are the feasible measures to cut GHG emissions?

The webinar, titled *Reducing CO2 footprints of India's coal-based power sector*, brought together some key experts from the field to discuss the issue. The following measures were put forth by experts during the webinar:

- . **Improve fleet technology and efficiency, renovate and modernise:** India has one of the youngest coal fleets in the world, with around 64 per cent of the capacity (132 GW) less than a decade old. Maintaining efficiency of this large fleet will be crucial as it is going to be operational for at least the next 15-20 years. The government's renovation and modernisation policies need to play a key role in maintaining the efficiency of this fleet.
- . **Plan for the old capacity:** In 2015, over 34 GW capacity in India was more than 25 years old, and 60 per cent of it was highly inefficient. Increasing India's renewable electricity generation can help further the cause to accelerate the retirement of old and inefficient plants.
- . **Propagate biomass co-firing:** Biomass co-firing is a globally accepted cost-effective method for decarbonising a coal fleet. Only one plant currently co-fires biomass in India. India is a country where biomass is usually burnt on the field — this reflects apathy towards resolving the problem of clean coal using a very simple solution that is readily available.



- . **Invest in carbon capture and storage (CCS):** Globally, carbon capture and storage has struggled to pick up. India's prospects appear to be dim at least until 2030. Businesses should invest in indigenous research and development to bring down the costs of CCS.
- . **Bring back coal beneficiation:** This is another missed opportunity on which we need a course correction.
 - œ A 1997 environment ministry notification had mandated the use of beneficiated coal from 2001 with ash content not more than 34 per cent.
 - œ However, in 2020, overturning the good work, the government allowed use of coal irrespective of the ash content.

The measures, among others, could help cut GHG emissions by 22 per cent, according to CSE.

KERALA: FORKED FANWORT BLOOMS IN KOZHIKODE

© **CONTEXT:** **Recently, a river in Kerala's Kozhikode district has turned pink because of millions of forked fanwort flowers that have blossomed in its waters.**

- © **ABOUT:**
- The aquatic plant behind the 'pink phenomenon' is forked fanwort.
 - . **Local name:** It is known locally as 'mullan payal'.
 - . **Family:** It comes from the family of Red Cabomba (Cabomba Furcata).
 - . Cabomba is a submerged perennial aquatic plant that grows in stagnant to slow-flowing freshwater. It dominantly belongs to Central and South America.
 - . **Native species:** It is not a native species found in the waters of Kerala. It is native to South America and is mostly used as an aquarium plant.

Kerala, the spot of alien invasions

- . Kerala has records of biological invasions dating back to the 19th century. It continues to experience several waves of alien invasions till today.
- . Terrestrial invasive alien plants such as Chromolaena odorata, Lantana Camara, Mikania micrantha, Mimosa diplotricha, and Sphagneticolobata, and invasive fauna such as the giant African snail Achatina fulica, papaya mealybug Paracoccus marginatus, etc have affected the biodiversity of rural and urban spaces in Kerala, said Sajeev.
- . These species impact the ecology and economy by damaging the crops, recreational spaces and small home gardens.
- . They pose significant health risks in some cases as well.

Impact of invasion of Cabombas

- . **Decrease in diversity of native plants:** The invasion of Cabombas has led to a decrease in the diversity of native aquatic plants.
- . **Species conflict:** The aquatic ecosystems are under threat of Cabomba furcata and Salvinia molesta where the competition between these two species is clearly visible in the canal.
- . **Taking toll on species:** It can drain the river of its natural resources including minerals and oxygen, which in turn, could lead to the death or migration of the rest of the aquatic species in the water body.
- . **Economic loss:** It has also caused economic losses by affecting the yield of freshwater fishes.

CURRENT AFFAIRS ANALYST

WEEK- 4 (DECEMBER, 2020)

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SECTION: A
(MAINS)
CURRENT AFFAIRS



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DELHI'S POSITION AND EARTHQUAKE ZONES OF INDIA

CONTEXT

Whenever earthquake hits Delhi, there starts discussion on the tectonic faults that the city lies on. In this regard, it is essential to understand the major earthquake zone where does the national capital stand.

◎ BACKGROUND

- œ The terrain of Delhi is flat in general except for the north-northeast (NNE)-south-southwest (SSW) trending ridge.
- œ The region is considered as an extension of the Aravalli hill, which is buried under the Yamuna alluvium in the northern parts of Delhi.
- œ River Yamuna enters the city and forms a tri-junction with the Lahore-Delhi ridge, and the Delhi-Haridwar Ridge.
- œ This region is seismically active and shows sporadic activity aligned in NNE-SSW direction, nearly perpendicular to the Himalayan arc.
- œ Apart from local tectonic faults, the proximity of the Himalayan region makes Delhi susceptible to the earthquakes from Himalayan seismic sources.
- œ Thus, the region around Delhi is **inhomogeneous** as far as its **seismotectonic** status is concerned.

Know Your Basics

What are tectonic plates?

The Earth's lithosphere, which includes the crust and upper mantle, is made up of a series of pieces, or tectonic plates, that move slowly over time. There are three main types of plate boundaries:

• **Convergent boundaries: where two plates are colliding**

- > Convergent plate boundaries are locations where lithospheric plates are moving towards one another.
- > One plate eventually slides beneath the other, a process known as subduction.
- > Subduction zones occur when one or both of the tectonic plates are composed of oceanic crust. The denser plate is subducted underneath the less dense plate. The plate being forced under is eventually melted and destroyed.

> **Where oceanic crust meets ocean crust**

Island arcs and oceanic trenches occur when both of the plates are made of oceanic crust. Zones of active seafloor spreading can also occur behind the island arc, known as back-arc basins. These are often associated with submarine volcanoes.

> **Where oceanic crust meets continental crust**

The denser oceanic plate is subducted, often forming a mountain range on the continent. The Andes is an example of this type of collision.

> **Where continental crust meets continental crust**

Both continental crusts are too light to subduct so a continent-continent collision occurs, creating especially large mountain ranges. The most spectacular example of this is the Himalayas.

• **Divergent boundaries: where two plates are moving apart**

The space created can also fill with new crustal material sourced from molten magma that forms below. Divergent boundaries can form within continents but will eventually open up and become ocean basins.

> **On land:** Divergent boundaries within continents initially produce rifts, which produce rift valleys.

> **Under the sea:** The most active divergent plate boundaries are between oceanic plates and are often called mid-oceanic ridges.

• **Transform boundaries: where plates slide passed each other**

> The relative motion of the plates is horizontal. They can occur underwater or on land, and crust is neither destroyed nor created.

> Because of friction, the plates cannot simply glide past each other. Rather, stress builds up in both plates and when it exceeds the threshold of the rocks, the energy is released – causing earthquakes.

◎ **ANALYSIS**

Where does India lie?

- œ India lies at the **north-western end of the Indo-Australian Plate**, which encompasses India, Australia, a major portion of the Indian Ocean and other smaller countries.
- œ **Indo-Australian Plate** is colliding against the huge **Eurasian Plate** and going under the Eurasian Plate.
- œ This process of one tectonic plate getting under another is called subduction.

Indo-Australian Plate

- . The Indo-Australian Plate is one of Earth's 7 major plate tectonic boundaries. It's the second smallest being slightly larger than the South American Plate.
- . At about 58,900,000 km², the Indo-Australia plate is the sixth largest plate tectonic boundary.
- . The Indo-Australian Plate includes the majority of the Indian Ocean. It borders:
 - > the Eurasian Plate in the north
 - > the Antarctic Plate in the south
 - > the Pacific Plate in the east

What causes Earthquake?

- œ The primary cause for an earthquake is the movement of rocks beneath the earth's surface.
- œ The movement is usually caused by the continuous movement of plates that make up Earth's crust.
- œ This movement exerts stress on rocks, causing the latter to respond by breaking along existing fractures called fault lines.
- œ The sudden release of energy during such breakup causes the tremors.

Seismic Zones in India

- œ While scientists cannot predict the time, place, or the exact scale of these quakes, consistent seismic activity around the Delhi-NCR region could be a precursor to a major earthquake.
- œ There are a total of four seismic zones in India.
 - > **Zone V:** Entire northeastern India, parts of Jammu and Kashmir and Himachal Pradesh, Uttaranchal, Rann of Kutch in Gujarat, parts of North Bihar and Andaman & Nicobar Islands.
 - > **Zone-IV:** The remaining parts of Jammu and Kashmir and Himachal Pradesh. Delhi-NCR region, Sikkim, northern parts of Uttar Pradesh,

Bihar and West Bengal, parts of Gujarat and small portions of Maharashtra near the west coast and Rajasthan.

- > **Zone III:** Goa, Kerala, Lakshadweep, remaining parts of Uttar Pradesh, Gujarat and West Bengal, parts of Punjab, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Maharashtra, Orissa, Andhra Pradesh, Tamil Nadu and Karnataka.
- > **Zone II:** Parts that are not under the above zones.

Major Indian cities and their earthquake zones

- . **Zone V cities**– Guwahati and Srinagar
- . **Zone IV cities** — Delhi, Patna, Dehradun, Jamnagar, Meerut, Jammu, Amritsar and Jalandhar
- . **Zone III cities** — Ahmedabad, Vadodara, Surat, Rajkot, Bhavnagar, Pune, Bhiwandi, Nashik, Greater Mumbai, Thane, Bhubaneswar, Cuttack, Chennai, Asansol, Coimbatore, Agra, Varanasi, Bareilly, Lucknow, Kanpur, Kolkata, Indore, Jabalpur, Vijaywada, Dhanbad, Mangalore, Kochi, Kozhikode, Trivandrum.

What is Delhi's geographic location?

- œ Delhi is vulnerable to earthquakes in particular mainly because of its location. Delhi is situated on top of few active seismic fault lines. Moreover, its proximity to other active seismic fault lines further worsens the situation.
- œ Delhi falls under the fourth-highest seismic zone, which makes it vulnerable to earthquakes.
- œ Furthermore, it lies in the Himalayan foothills.
- œ Since the formation of the Himalayas, a large part of the crust under the mountain ranges has remained deformed.
- œ These rocks remain stressed and folded due to the continuous movement of the Indian plates under the mountain.
- œ And when the piled-up stress gets released, it produces minor frequency earthquakes in and around the National Capital Region.

◎ **CONCLUSION**

The entire **Himalayan seismic zone** is vulnerable to strong earthquakes. The Indian tectonic plate is continuously driving into the Eurasian plates around this region at a speed of 44 mm/year. Due to this motion of tectonic plates, stress builds up, and the earthquakes are triggered to release tension. Not only Delhi, but many parts of north, east and northeastern India are at constant risk of strong earthquakes due to this phenomenon.

EDUCATING TRIBALS OF INDIA

CONTEXT

- Tribal communities in India have been historically deprived of access to resources and opportunities, including the ‘opportunity to get educated’.
- For such historically deprived communities, providing ‘access to education’ is simply not enough. However, it is important to analyse the status of tribal education with literacy rate, gross enrolment ratio and dropout rates in India.

◎ BACKGROUND

- œ Since India’s independence, the Union and state governments, have initiated several schemes and programmes to educate the country’s tribal population.
 - > These include the establishment of Ashram Schools, Ekalavya Model Residential Schools, Kasturba Gandhi Balika Vidyalaya, pre-matric scholarships and vocational training centres, etc.
- œ Policy analyst and educationists have been meaning to recognize tribal culture, language, cognitive strength, curriculum and inherent learning ability of the tribal children.
- œ They believe this could revamp the tribal education system in the country.
- œ There is, however, a long way to ensure holistic education in the tribal hinterlands.

◎ ANALYSIS

Who are ‘Tribals’?

- œ In India, the indigenous communities are commonly referred to as **tribal** (*adivasi*) communities.
- œ **Recognition:** They are recognised as **Scheduled Tribes** under the Constitution of India.
 - > Although the Constitution does not define Scheduled Tribes as such, it designates these communities as those which are scheduled in accordance with **Article 342 of the Constitution**.
- œ **Who designates:** According to Article 342 of the Constitution, the Scheduled Tribes are the tribes or tribal communities or part of or groups within these tribes and tribal communities which have been declared as such by the **President** through a public notification.
- œ **Criteria:** The criteria followed for specification of a community, as scheduled tribe are:
 - > indications of primitive traits
 - > distinctive culture
 - > geographical isolation

- > shyness of contact with the community at large
- > backwardness

- œ At present, 533 tribes in India have been notified under Article 342 of the Constitution with the largest number of 62 tribes belonging to the State of Orissa.

What is the literacy trend of Indian tribes?

- œ Literacy is an important indicator of development among tribal groups.
- œ **Overall literacy:** The percentage of literacy of tribes was only 8.54 percent in 1961 which has increased to 63.1 percent in 2011.
- œ **Male vs Female:** But female literacy of tribes is only 54.4 percent compared to male literacy of 71.7 percent.
- œ **Drop-out:** Nearly 50% of the children from this social group drop out while transitioning from primary to secondary grades (based on the educational status recorded in the same census).
- œ Nearly 80% of them stop education when they are in grade X in other words, only 20% appear for the high-school examination.

What are the major issues/challenges of tribal education?

There are various critical issues and problems in the field of tribal education. They are as follows:

- œ **Medium of language:** Language is one of the important constraints of tribal children which prevents them access to education.

Medium of instruction

- œ **Article 350A** of the Constitution of India states that every state must have adequate facilities to teach children in their **mother tongue**.
- œ It is commonly assumed that tribal students are slow-learners. Overcoming the language barrier requires concerted efforts.

œ The Odisha Government and civil society organisations have made some promising efforts to educate the Gonds, Bhils, Santals and other tribal groups in their mother-tongue.

- > Tribal children are responding well to such innovative programmes, according to educationists.
- > The literacy rate among the Koyas, Santals, Bhuyia, Bhatudi and Bhumiji, has steadily gone up over the years.

œ **Article 351:** Article 351 provides a directive for development of the Hindi language.

œ **Location issues:** The physical barriers create a hindrance for the children of a tribal village to attend the school in a neighboring village.

œ **Financial burden:** The economic condition of tribal people is so poor that they do not desire to spare their children or their labour power and allow them to attend schools.

œ **Family issue:** As education does not yield any immediate economic return, the tribal parents prefer to engage their children in remunerative employment which supplements the family income.

œ **Teacher absenteeism:** In the remote tribal areas, the teacher absenteeism is a regular phenomenon. It affects largely the quality of education.

œ **Lack of proper monitoring:** Proper monitoring is hindered by various issues and mainly by poor coordination between the Tribal Welfare Department and School Education Department.

œ **Inadequate funds and human resource:** The biggest lacunae noted in the field of tribal education is the inadequate funds and human resources devoted to teacher capacity building and sensitisation on tribal context.

œ How educating tribals will impact the country?

œ **Improving the overall conditions:** The country has the single largest tribal population in the world. Education is the only light which can bring transformation in the overall condition of the tribal people in general and country in particular.

œ **Enhancing capabilities:** With education, tribals will become capable of collectively bringing in significant changes and improving the whole community.

œ **Economic growth:** Furthermore, education will not just benefit the tribal population, it will benefit

the entire economy. As education will provide them with diverse employment opportunities which in turn drive their consumption pattern leading to consumption driven growth in the economy.

œ **Improved standard of living:** Education will also bring immediate changes in tribal's state of living and will further improve their future living conditions.

œ **Human development:** Addressing the educational gap between the tribes and the mainstream society is important for improving human development indicators of the country.

Concerned Ministries and Organization

. Ministry of Tribal Affairs

- > The Ministry was set up in 1999 after the bifurcation of Ministry of Social Justice and Empowerment with the objective of providing more focused approach on the integrated socio-economic development of the Scheduled Tribes (STs).

- > The Ministry of Tribal Affairs is the nodal Ministry for overall policy, planning and coordination of programmes for development of ST's.

- > It covers all tribal people and all areas with tribal population across the country.

œ Social security and social insurance to the Scheduled Tribes

œ Tribal Welfare: Planning, project formulation, research, evaluation, statistics and training

œ Promotion and development of voluntary efforts on tribal welfare;

œ Development of Scheduled Tribes

œ Scheduled Areas

œ Monitoring of Tribal Sub-Plan, based on the framework and mechanism designed by NITI Ayog National Commission for Scheduled Tribes

- > **The National Commission for Scheduled Tribes (Article 338)**

- > Commission to report on the administration of Scheduled Areas and the welfare of the Scheduled Tribes.

- > Issue of directions regarding the drawing up and execution of schemes essential for the welfare of the Scheduled Tribes in any State

What are the Government initiatives for Tribal Education?

- œ **First FYP:** Starting from the First Five Year Plan Period1 (1951-1956) the government is steadily allocating financial resources for the purpose of tribal development.
 - > Towards, the end of the plan (1954), 43 Special Multipurpose Tribal Development Projects (MTDPs) were created.
- œ **Third FYP:** During the Third Five Year Plan Period (1961-1966), the government adopted the strategy of converting areas with more than 66 per cent tribal concentration into Tribal Development Blocks (TBDs).
- œ **Fourth FYP:** By the end of Fourth Five Year Plan (1969-1974), the number of TBDs rose to 504. Additionally, in 1972 the Tribal Sub-Plan Strategy (TSP) was implemented by the Ministry of Education and Social Welfare.
 - > TSP was based on twin objectives of socio-economic development and protection against exploitation.
 - > It was generally implemented in the areas where the Scheduled Tribe population was more than 50 percent of the total population.
- œ **PESA:** The **PESA (The Panchayats Extension to Scheduled Areas) Act, 1996** in fact, has made it mandatory for the States having scheduled areas to make specific provisions for giving wide-ranging powers to the tribes on the matters relating to decision-making and development of their community.
- œ **Janshala Programme:** The Janshala Programme is a collaborative effort of the Government of India (GOI) and five UN Agencies – UNDP, UNICEF, UNESCO, ILO and UNFPA.
 - > It is a community based primary education programme, aims to make primary education more accessible and effective, especially for girls and children in deprived communities, marginalised groups, SC/ST/minorities, children with specific needs.
- œ **Ashram Schools:** The educational needs of tribal children are primarily addressed through residential schools called ashram schools.
 - > There are more than 800 centrally-sanctioned ashram schools spread across the country. These provide boarding and lodging facilities to children in tribal areas until they complete their secondary education.
- œ **Eklavya Model Residential Schools:** Apart from these, government has also started Eklavya Model Residential Schools on the lines of KGBVs and Navodaya Vidyalayas.

What is the role of United Nations in tribals education?

- œ United Nations Children’s Fund (UNICEF) has been promoting quality education and employability amongst marginalised children.
- œ **Quality education for all:** UNICEF, in collaboration with UNESCO, is supporting the Union government to achieve quality education for all children between 6 and 14 years.
- œ Some of the key areas for cooperation include
 - > reaching out to vulnerable and deprived children
 - > adapting international practices
 - > supporting care providers and community advocates to demand inclusive and quality education.
- œ **Child-friendly schools and systems (CFSS):** One of the promising initiatives by UNICEF is to support for the development of the child-friendly schools and systems (CFSS) guiding principles, launched in 2014 and approved by the Union Ministry of Human Resource Development.
- œ To ensure effective implementation of CFSS, assistance has also been provided for monitoring tools and the integration of CFSS indicators into state plans in support of making child-friendly schools.
- œ **Promoting the Rights of Disabled Children to Quality Education:** Similarly, in collaboration with UNESCO, UNICEF is implementing a project titled *Promoting the Rights of Disabled Children to Quality Education* financially supported by the UN partnership to promote rights of persons with disabilities.
 - > Under this project, UNICEF provides support to states to make primary education curriculum more inclusive for children with disabilities and building technical capacity of teachers.

How Government can improve the tribal education?

- œ **Literacy awareness:** To create the awareness about the importance of education, proper awareness campaign should be organized.
- œ **Counselling tribal parents:** The attitude of the tribal parents toward education can be improved through proper counseling and guidance.
- œ **Focus local languages:** Study resources and material should be supplied in local languages of tribes to increase engagement.
- œ **Financial assistance:** Special scholarships should be provided to the tribal students perusing higher education, particularly in medical, engineering, and other vocational streams.

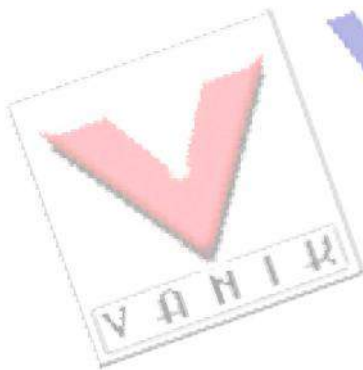
- œ **Residential schools:** More residential schools should be established in each states and districts and extended up to PG level in tribal areas.
- œ **Social security:** Social security of students, especially of adolescent girls is of great concern in residential schools. Enough focus should be given to improving social security.
- œ **Proper Monitoring:** The functioning of schools should be frequently monitored relating to the teaching methods, working hours, and attendance registers.
- œ **Teacher-student relationship:** A cordial relationship between tribal students and their teachers is one of the critical factors to promote meaningful learning in classrooms. It is important to understand that tribal children do not have the

same backgrounds as their non-tribal schoolmates or teachers.

- œ **Tribal leadership:** Integration of tribal youth in their culture is imperative.

© **CONCLUSION**

The present situation demands for effective collaboration and strategic discourse between government, policy-makers, civil society organizations and international development institutions to collectively put efforts to address the chronic problems and allocate adequate funds for tribals education. A long-term strategy is required to enhance educational status of tribal children.



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ONE YEAR ON, NOWITHDRAWAL OF PATHALGADI CASES

CONTEXT

- In December 2019, the state government of Jharkhand had decided to drop “all cases” related to the Pathalgadi movement of 2017-2018.
- Almost a year later, the government is still to send a requisition to the court to withdraw the cases, many of which involved charges of sedition.

◎ BACKGROUND

œ The Jharkhand government in May 2016 had attempted to tweak Chhotanagpur Land Tenancy Act, 1908 and the Santhal Pargana Tenancy Act, 1949.

- > These Acts were regarded as a *rakshya kavach* (protective shield) for the land of tribals.

œ However, the bill never got the go ahead due to massive protest by tribal communities.

œ This led to violence in the state capital and protests were held in various parts of the state.

œ As an extension to this protest, the tribals of Khunti, Gumla, Simdega, Saraikela, West Singhbhum area started erecting stones in their villages with PESA provisions highlighting their rights which came to be known as **Pathalgadi movement**.

œ During the Pathalgadi movement, many villages saw people gathering from surrounding areas with bows and arrows to ‘assert their rights’.

œ This resulted in a crackdown leading to the death of a tribal, Birsa Munda – named after the freedom fighter.

œ Following this, cases were registered against several villagers.

œ In December 2019, the state government promised to drop the cases filed against the supporters of the Pathalgadi movement in 2017 and 2018.

Stone plaques

- Stone plaques and signboards dismiss the authority of the central or the state governments on their villages.
- These are meant to serve as warnings to the outsiders.
- The stone plaques and signboards also contain "orders" prohibiting outsiders from entering the tribal village.
- They proclaim allegiance to the Constitution but reject any authority except their gram sabhas (village assemblies).
- They claim to be the real "Bharat Sarkar" (the government of India).
- Their fight is aimed to reclaim their rights over "jal, jangal and zameen (water, forest and land)".

œ Adivasis usually erected engraved stones to mark the birth or death of a person.

œ It is also done in honour of their ancestors, to announce important decisions regarding their families and villages or to simply mark the boundary of their villages.

œ The practice is still being followed even today in the Munda areas of Khunti.

œ Pathalgadis have their presence in Jharkhand, Chhattisgarh, Odisha and parts of West Bengal and Madhya Pradesh.

œ This was first used to create political awareness when the **Panchayat (Extension of Scheduled Area) Act (PESA)** came into force in 1996.

- > That Act empowered the **gram sabhas** or **panchayats** to safeguard and preserve their traditions, community spaces and culture, and gave them the right to mandatory consultation in land acquisition.

œ The Fifth Schedule of the Constitution deals with the administration and control of Scheduled Areas as well as of Scheduled Tribes.

◎ ANALYSIS

What is Pathalgadi?

œ The Pathalgadi movement originated in the **Khunti** area of the state.

œ ‘Pathalgadi’ literally means ‘carving a stone’ — it is an ancient tradition in the tribal communities of Jharkhand.

How this practice became strong?

The Pathalgadi practice took on a new meaning after tribal activists, former IAS officer B.D. Sharma (now deceased) and IPS officer Bandi Oraon, initiated the practice of erecting stones outside villages after the Panchayat (Extension of Scheduled Area) Act came into existence in 1996.

These stone plaques are still reportedly found in four districts in Jharkhand – Khunti, Gumla, Simdega and West Singhbhum.

They are found at the entry of villages and often prohibit outsiders from entering the village.

Revival of the movement

- œ The Pathalgadi movement was to **save tribal land rights**, when the Jharkhand government introduced amendments to the Chotanagpur Tenancy Act (CNT) 1908 and the Santhal Pargana Tenancy (SPT) Act 1949
- œ It started in 2017, when stone monoliths engraved with provisions of the Indian Constitution began to be installed in the villages of Khunti.
- œ The engravings highlighted the special autonomy granted to Adivasi areas under the **Fifth Schedule of the Indian Constitution**.

Chotanagpur Tenancy (CNT) and Santhal Pargana Tenancy (SPT) Acts

- . The CNT Act was enacted in 1908, eight years after the death of Birsa Munda. This Act extends to the north and south Chotanagpur and Palamau divisions.
- . The SNT Act was passed in 1949, extending to Dumka, Sahibganj, Godda, Deoghar and Pakur in the Santhal Pargana region in eastern Jharkhand.
- . Since both Chota Nagpur and the Santhal Pargana are tribal-populated regions in Jharkhand, these Acts contained elaborate rules to protect their land rights. Together, these Acts granted special protection and land rights to the tribals and prohibited the **transfer of tribal land to non-tribals** or the commercial use of the land without the permission of the concerned gram sabha.

What was the response to the ordinance?

- œ In response to the Bill, stone plaques were installed in villages of Khunti district with the **Fifth Schedule of the Constitution** engraved on them.

- œ This was a reminder of the autonomy provided to the gram sabha and the tribal communities as per the Constitution of India.
- œ Soon, the Pathalgadi movement spread to other tribal districts in Jharkhand and even to the neighbouring state of Chhattisgarh.
- œ The Jharkhand Assembly passed the ordinances in June 2017, causing protests by tribal communities and opposition from political parties like the Congress and the JMM.
- œ In August 2017, the two amended Bills were withdrawn.

-) Land is at the core of tribal societies' survival.
-) As per the customs of Munda and Santhal tribals, the ownership of land belongs to all the families of the same *killi* (clan), who cleared the forest and made land cultivable.
-) This age old custom provides an identity of being a Munda or Santhal and their country.

The cases

- œ In November 2019, the Jharkhand Police had filed sedition cases against more than 10,000 people between June 2017 and July 2018 in Khunti district.
- œ Under the sedition law, the people were booked for "exciting, or attempting to excite feelings of disaffection against the government."
- œ But the new Hemant Soren-led JMM government dropped all sedition cases against those involved in the Pathalgadi movement in December 2019 and those booked in protests against CNT and SPT amendments.

-) **Section 124 A** of the Indian Penal Code pertains to sedition
-) **Section 120A** deals with criminal conspiracy
-) **Section 120B** doles out punishment for the criminal conspiracy cases.

What were the 'specific' demands of the Pathalgadis?

- œ **Self-rule:** Pathalgadis started asking for self-rule and said that the government should enter their area with Gram Sabha permission.
- œ **No outsider allowed without permission:** Quoting **Article 19 (5) of the Indian Constitution**,

they said outsiders are not allowed to live and work in adivasi villages without permission. The administration's pamphlet calls this unconstitutional and violative of fundamental rights.

- œ **No common formalities:** They did not believe in Voter-ID cards or Aadhar cards, saying that it is for 'common people', and they did not follow it since they "khas admi".

Is Pathalgadi movement 'inspired' from Satipati movement?

- œ It is widely believed that Pathalgadi movement is "inspired" from Gujarat's Satipati movement that denounces the government of India and doesn't believe in its laws.
 - > Satipati followers believe that they have the sovereign right over the forest and other natural resources.
 - > They are known for boycotting votes and government benefits, among others.
 - > However, the Satipati movement has remained non-violent in the state, which originated from Vyara in Tapi district by **Kunwar Keshri Singh**.
- œ The Pathalgadi movement, which also seeks Adivasi rights over the resources by self-rule and prohibits outsiders, has gone violent on many occasions.
- œ Pathalgadhi is said to have originated from Khunti district, the birthplace of tribal icon Birsa Munda.

Analysis of tribal rights in India

- œ Tribal people constitute 8.6% of the nation's total population, over 104 million people according to the 2011 census. About 15 percent of land area in India is occupied by tribal communities

. Domestic level

- > **Schedules:** The Fifth and Sixth Schedules of the Constitution carve out a separate legal and administrative framework for certain designated tribal majority areas within the territory of India.
 - . **Fifth Schedule:** It designates tribal majority areas in ten tribal minority states within peninsular India including, Andhra Pradesh, Telangana, Gujarat, Jharkhand, Chhattisgarh, Himachal Pradesh, Madhya Pradesh, Maharashtra, Orissa and Rajasthan.
 - . **Sixth Schedule:** It designates such tribal majority areas in north eastern states, including Assam, Meghalaya, Mizoram, and Tripura. Of these, Meghalaya and Mizoram are tribal majority states.
- > **Forest Rights Act, 2006** which protects the individual and community rights of tribal

people in forest areas and their right to free and prior informed consent in event of their displacement and resettlement.

- > **Article 15** pertaining to prohibition of discrimination on grounds of religion, race, caste, sex or place of birth
- > **Article 16** pertaining to equality of opportunity in matters of public employment
- > **Article 46** pertaining to promotion of educational and economic interests of scheduled castes, scheduled tribes and other weaker sections
- > **Article 335** pertaining to claims of scheduled castes and scheduled tribes to services and posts.
- > As per **Article 338-A** of the Constitution of India, the **National Commission for Scheduled Tribes** has been set-up.
 - . The Commission investigate and monitor all matters relating to the safeguards provided for the Scheduled Tribes

. International Conventions

- > **UNDRIP:** The United Nations Declaration on the Rights of Indigenous People (UNDRIP), adopted in 2007, for which India voted, recognises among other things indigenous peoples' rights to self-determination, autonomy or self-governance, and their right against forcible displacement and relocation from their lands or territories without free, prior and informed consent.
- > **Indigenous and Tribal Peoples, 1989:** There is the International Labour Organisation (ILO) Convention concerning Indigenous and Tribal Peoples, 1989 which is based on the "respect for the cultures and ways of life of indigenous peoples" and recognises their "right to land and natural resources and to define their own priorities for development."
 - . India is not a party to this, but it is a party to the ILO Convention concerning the Protection and Integration of Indigenous and Other Tribal and Semi-Tribal Populations in Independent Countries, 1957 which is outdated and closed for ratification.

© CONCLUSION

Jharkhand's eagerness to attract huge industries in the state or to perhaps improve its position or rating is coming at a huge price. Tribals consider land as God. For centuries, these people have been closely linked with forests, it has always been their way of life. They should not be alienated from their lands, otherwise, it would be a crime.

UK 'FINALLY' STRUCK A POST-BREXIT TRADE DEAL WITH EU

CONTEXT

Britain clinched a historic deal with the European Union as both sides managed to thrash out a post-Brexit free trade agreement just days before the December 31 deadline.

◎ BACKGROUND

- œ Some 47 years after joining the European Union, Britain officially left the bloc on January 31, 2020.
- œ In doing so, it became the first ever nation to leave the EU known as '**Brexit-British exit**', after the referendum of June 2016 in which Britons voted **52% to 48% to leave the EU**.
- œ However, it agreed to continue following European rules until the end of 2020 so it could negotiate friendlier trading conditions with the 27 other nations.
- œ Since then the UK and the EU have been trying to define the future contours of their relationship but the negotiations went to the wire, as the current arrangement ends on 31 December.
- œ Though the details of the final pact are yet to be released, the full document is about the new rules for how the UK and EU will live, work and trade together.

◎ ANALYSIS

What are the EU and Brexit?

- œ The European Union is made up of 27 European countries.
- œ EU citizens are free to live and work in other EU countries, and firms in those countries can buy and sell each other's goods without checks or extra taxes at borders.
- œ The UK first applied to join what was then the European Economic Community in 1961 and finally became a member in 1973.
- œ Now called the European Union, it has grown to include former Soviet bloc states and has at its heart a "single market" allowing goods and people to move freely.
- œ The UK was the first country to leave the EU and this was known as Brexit - British exit.
- œ Brexit happened because a public vote - or referendum - was held in June 2016, to decide whether the UK should be in the EU.

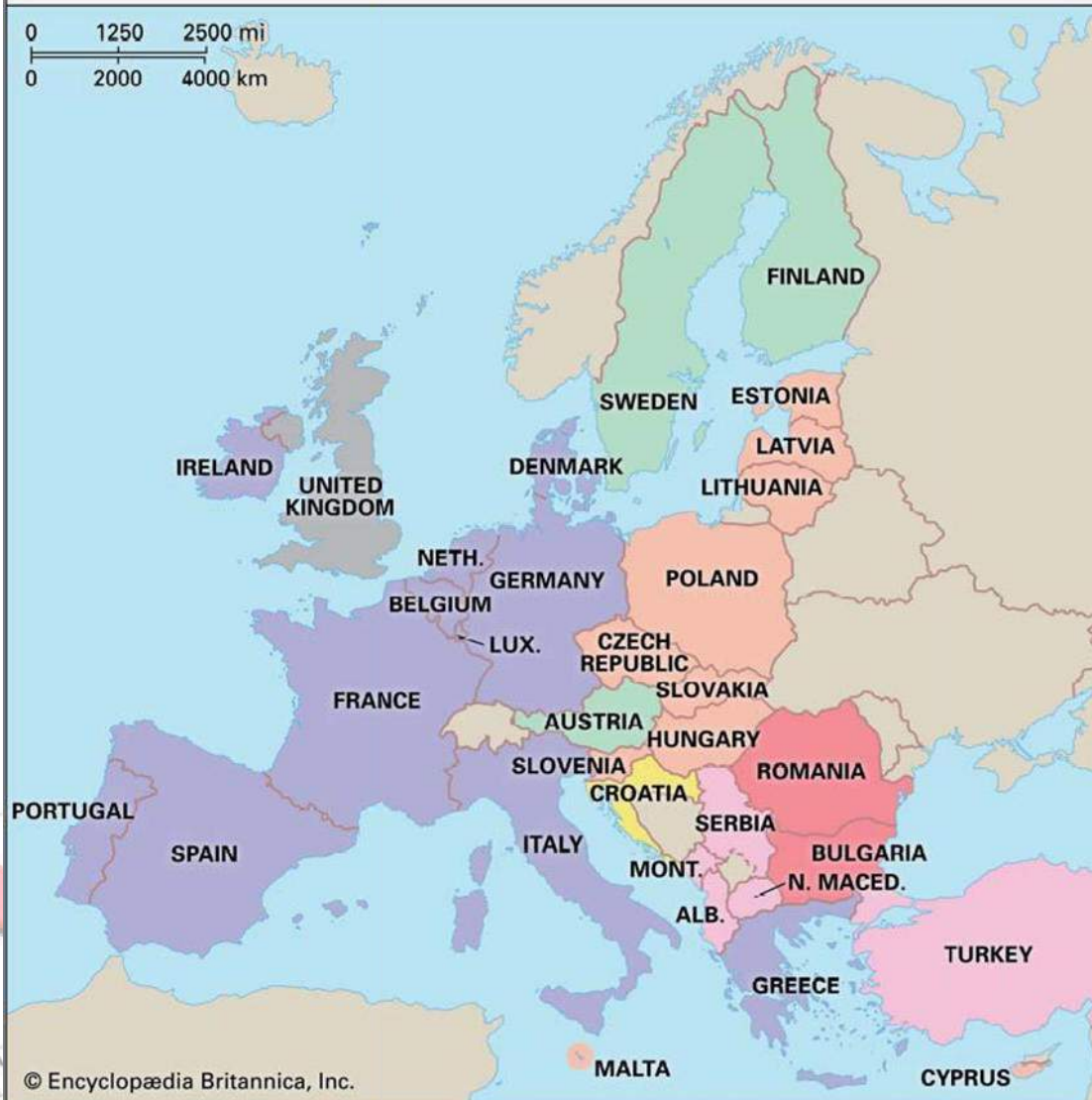
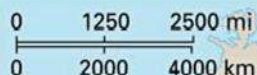
The history behind Brexit

- . In 1957, **France, West Germany, Belgium, Italy, Luxembourg** and the **Netherlands** signed the **Treaty of Rome**, which established the **European Economic Community (EEC)**, the predecessor of today's **European Union**.
- . When the United Kingdom first applied for membership in the EEC in 1963, its application was vetoed.
- . The UK finally made it into the club in 1973, but just two years later was on the verge of backing out again.
- . Tensions between the EEC and the UK exploded in 1984, due to talks to reduce British payments to the EEC budget.
- . The **Maastricht Treaty**, which took effect in 1993, created the Brussels-based European Union (EU), of which the EEC, renamed simply the European Community (EC) was the main component.
 - > The EU was designed to integrate Europe's nations politically and economically, including:
 - œ a united foreign policy
 - œ common citizenship rights
 - œ a single currency, the euro (for most member nations, not including the UK)
 - > In 2013, David Cameron promises a referendum if the Conservatives win the election.
 -) In 2015, the Conservatives win the election.
- . Following a referendum Britons vote 52 percent to 48 percent in favour of leaving the EU.

What is the deal all about?

- œ The deal contains new rules for how the UK and EU will live, work and trade together.
- œ The two sides reached a "**zero tariff-zero quota**

THE EUROPEAN UNION



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deal” which will help smooth the trade of goods across the channel.

- œ Though the detail are not known yet because the full document has not been released.
- œ However, it signals that:
 - > No taxes on each other’s goods when they cross borders (known as tariffs)
 - > No limits on the amount of things which can be traded (known as quotas)
- œ The UK and EU will “continue co-operating in all areas of mutual interest, including things like climate change, energy, security and transport”.

Key points from the deal:

- . **Guarantees:** Zero tariffs and quotas on goods
- . **Movement:** The end of free movement, meaning UK citizens will no longer have the right to work, live, study, or start a business in the EU without a visa
- . **Border checks:** Border checks will apply between the UK and EU member states
 - > There will be no hard border on the island of Ireland between the Republic of Ireland and Northern Ireland

- . **Fishing activities:** The UK will be able to further develop British fishing activities for at least 5-and-a-half years, during which time European fishing communities will be safeguarded
- . **Climate commitment:** A shared commitment to protecting the environment, to fight against climate change and carbon pricing
- . **Labour rights:** A shared commitment to protecting social and labor rights
-)] **Taxation:** Keeping standards on tax transparency
-)] **Transport sector:** Passengers' and workers' rights in the transport sector
-)] **Participation in EU programs:** The UK's continued participation in a number of EU programs until 2027 such as Horizon Europe, subject to a UK financial contribution.

Assessing the impacts

- œ **No free movement:** Even with a trade deal, goods and people will no longer be able to move freely between the U.K. and its continental neighbors without border restrictions.
- œ **Visas:** EU citizens will no longer be able to live and work in Britain without visas -- though that does not apply to the 4 million already doing so - and Britons can no longer automatically work or retire in EU nations. Exporters and importers face customs declarations, goods checks and other obstacles.
- œ **Strengthening economy:** The agreement would help mitigate economic disruption and could provide a starting point for constructive future economic and political relations.
- œ **Green signal for businesses:** Given that the EU is the UK's biggest trading partner, this is big deal for the businesses which were getting jittery about the prospects of a deal Brexit.
- œ **Fulfilling goals:** Both sides claim that the deal protects their cherished goals.
 - > Britain said it gives the U.K. control over its money, borders, laws and fishing grounds.
 - > The EU says it protects the EU's single market and contains safeguards to ensure that Britain does not unfairly undercut the bloc's standards.

How would the deal impact India?

- œ India may emerge as a net gainer from the Brexit deal signed between the UK and the EU as services exports from Asia's third-largest economy are likely to benefit from the curbs on the free movement of professionals between the two markets.

- œ The country should explore opportunities in service sectors like IT, architecture, research and development and engineering.
- œ India would now be able to sign trade deals separately with both the EU and the UK.

The bilateral trade between India and the UK dipped to \$15.5 billion in 2019-20 from \$16.9 billion in 2018-19.

What are the unaddressed challenges in the deal?

The challenges remain on multiple fronts.

- œ The operationalization of this deal will be closely watched as the new year will commence with some immense changes for ordinary Britons.
- œ **Unaddressed service sector:** Also, this agreement doesn't deal with services which will have to be taken separately later on and that will be critical for the UK given its huge services sector.
- œ **Lack of negotiating space:** This will be particularly difficult time for the UK financial sector whose entry into the EU would depend on EU's decision without any negotiating space for the UK.
- œ **Data flow:** The data flow between the two will also have to be addressed later on.
- œ **Unprecedented challenges:** With the continuing Covid-19 pandemic, decelerating economies, an inward looking America, a belligerent China, and an unprecedented flux in the Indo-Pacific, both the EU and the UK have to look beyond their immediate periphery.

What remained unanswered through the deal?

- œ Despite the deal, there are still unanswered questions about huge areas, including:
 - > security cooperation between the U.K. and the bloc
 - > access to the EU market for Britain's huge financial services sector.

The road ahead

- œ Even though the deal has been agreed, it still needs to be made law. For that to happen it must be looked at and approved by both the UK and European parliaments. As it's been left so late, the European Parliament won't have time to sign it off before the end of the year. However, the deal will come into force on 1 January in any case with both sides trying to get over this last hurdle without any further delays.

FIRST CENTRE OF EXCELLENCE FOR SKILL DEVELOPMENT

CONTEXT

In a significant development and in line with the commitment to skill development and vocational training, the first Centre of Excellence for skill development in the power sector has been inaugurated.

◎ BACKGROUND

- œ India is taking rapid strides to move towards renewable energy to accelerate economic development, improve energy security and energy access while mitigating climate change challenges too.
- œ The country's success in achieving all of these demands for a rich pool of workforce in the energy sector to propel India to become one of the top leaders in the world's renewable energy market.
- œ Sustained efforts towards boosting the growth of renewable energy sector will play a significant role in helping the country inch closer to fulfilling the Prime Minister's vision of 'Aatmanirbhar Bharat'.
- œ India's recent partnership with Government of France for instituting the Centre of Excellence is another shining example of cooperation between the countries to achieve their long-terms energy goals.

◎ ANALYSIS

What led to the establishment of CoE?

- œ The establishment of CoE is a result of the MoU signed earlier between MSDE, Ministry of Education-France and Schneider Electric.
- œ **In collaboration:** The centre was inaugurated in collaboration with the Ministry of Skill Development and Entrepreneurship, Government of India, along with the Ministry of National Education and Youth, Government of France and Schneider Electric.
- œ **Sector:** The first Centre of Excellence for skill development in the power sector has been inaugurated for **skill development in power sector**.
 - > The **first Center of Excellence (CoE)** for skill development is inaugurated in the power sector in the campus of **National Institute of Solar Energy (NISE)** located at Gwal Pahari, Gurugram (Haryana) to create a robust cadre of certified trainers and assessors across the country.
- œ Further, an operational MoU was signed between National Skill Development Corporation (NSDC),

Schneider Electric India Foundation (SEIF), Power Sector Skill Council (PSSC) and National Institute of Solar Energy (NISE) for establishment of the centre, and to undertake high level training and skill development in the field of power and solar.

What will this CoE do?

- œ The Centre will focus on creating a pool of highly skilled trainers and assessors for further training to increase employability of candidates in the field of Electricity, Automation and Solar Energy Sectors.
- œ The centre will design and deliver Training for Trainers, Instructors, Training of Assessors and other high-end programme in the power and solar sector.
- œ The CoE has high-end modern labs designed keeping in mind the future technology, which will further strengthen India and France's relationship in energy sector.
- œ The CoE will be equipped with two labs, which have been set up by Schneider Electric as a part of its CSR initiative.
 - > The **Advance Electrician Lab** is equipped with specially designed instruments for training in home and building, and industry installation and automation.
 - > The **Solar Lab** will provide hands on practical training on latest technology in solar area.

How will it be done?

- œ With the launch of CoE, online training of assessors will commence which will include trainers from all over the country.
- œ In addition, training of youth is also being considered in the center.
- œ **Power Sector Skill Council** has also developed necessary learning contents for various job roles in generation, transmission, distribution and downstream sub sectors to facilitate learning.
- œ The **Department of Education, France**, deputed an expert to India for three years to conceptualise, design and head the proposed CoE.
 - > He has contributed by proposing the layout, guidelines, and best practices in electrical domain.

How will it be managed?

œ **Power Sector Skill Council** will be managing the operations of the centre.

Power Sector Skill Council

- . Power Sector Skill Council (PSSC) has been set up as a Society under **Society Registration Act 1860** with the objective of facilitating the skill development activities including capacity building for training delivery to meet the needs of Power Industry.
- . The purpose of establishing the Power Sector Skill Council (PSSC) is to ensure that skilled and certified manpower in adequate numbers is provided across various segments of this industry.
- . It major objectives are:
 - > Facilitate comprehensive engagement with Power Utilities.
 - > Sharing skill and employability concerns.
 - > Help in identification of major job roles with high employment volumes.
 - > Inputs for development of NOS/QPs.
 - > Support in NOS/QPs development study by PSSC Consultants.
 - > Support for validation.
 - > Power Equipment Manufacturing Sector.
 - > Preference in employment: Recruitment Rules to be NSQF skill level compliant.
 - > To consider PSSC certified workmen, both permanent and outsourced in employment.

What are the challenges in the power sector?

œ **Shortage of workers with requisite competencies:** The power sector faces an enormous shortage of workers with requisite competencies.

œ **Lack of skills:** With digitalisation driving across the value chain, skill development becomes imperative for the entire sector and all the more so in the distribution sector.

What are the recent government initiatives to enhance skills?

- œ **Skill India initiative:** The Government launched the Skill India Initiative in 2015.
- œ **Dedicated ministry:** The government has also created a dedicated Ministry for Skill Development and Entrepreneurship.
- œ **Coordinating agencies:** The National Skill Development Agency and the National Skill Development Corporation (NSDC) have also been created with the objective of coordinating and guiding all central government ministries involved in skill development initiatives.
- œ **Qualification Packs/National Occupational Standards (QPs/NOSs):** One of the key initiatives taken by the PSSC is the development of Qualification Packs/National Occupational Standards (QPs/NOSs) with reference to key job functions in the sector that have high employment potential.

Significance of the CoE

- œ **Boost in relationship:** With the help of advanced labs and future technology the CoE will boost the relationship between India and France in the energy sector.
- œ **Enhance skill development:** It will significantly enhance the training and skill development in the field of power and solar.

⦿ **CONCLUSION**

COVID-19's impact on the Indian electricity sector and electricity demand has been significant. Based on current policies, India's energy demand could double by 2040, with electricity demand potentially tripling as a result of increased appliance ownership and cooling needs. Without significant improvements in energy efficiency, India needs to skill its manpower to meet the rising demands.

WHAT ARE THE HEALTHCARE ETHICS IN A GLOBAL CRISIS?

CONTEXT

- With the limited health care resources and that too in the case of unprecedented demands (COVID-19), the decision making authorities face challenges in healthcare ethics.
- It is imperative to understand the healthcare ethics and its importance in dealing with difficult crisis.

◎ BACKGROUND

- œ There are more than 150 COVID-19 vaccines currently in development and an estimated 10 billion vaccine doses eventually will be delivered around the globe.
- œ Now, at this critical juncture of global vaccine shipping, healthcare ethics has taken the centre stage.
- œ All healthcare resources are limited – staff, equipment, drugs, space and time can all run out.
- œ Decisions about the use and allocation of scarce resources are regularly made in medicine. These usually proceed on the basis of those with the greatest medical need being given priority.
- œ But the way these allocation decisions are made in crisis situations differs.
- œ The current unprecedented health crisis is testing our ability to make appropriate choices and health decisions.
- œ These decisions are not limited to an individual but have an all-encompassing influence on the broader population. Therefore, these health decisions have to be moral and ethics based.

◎ ANALYSIS

The ethical dilemma

- œ From resource allocation and priority-setting, physical distancing, public health surveillance, health-care worker's rights and obligations to conduct of clinical trials, the COVID-19 pandemic presents serious ethical challenges.
- œ **Prioritizing people over people:** Decisions on how to allocate such limited resources are made in the full knowledge that hospital staff must prioritise some people over others – and that not all lives will be saved.
 - > Decisions will likely be simplistic – such as
 - age of the patient
 - health conditions
- œ **Concerns regarding end-of-life support:** Furthermore, the crisis raises ethical concerns not only surrounding triage and withdrawal of life

support decisions, but also regarding family visits and quality of end-of-life support.

- œ **Risk of 'sacrificing' vulnerable patients:** Faced with a massive influx of patients and extreme scarcity of ICU beds, the risk of "sacrificing the most vulnerable patients" shakes ethical convictions.
- œ **Discrimination:** It could lead to disadvantaged groups being systematically discriminated against.
- œ **Disposal of dead bodies:** Disposal of dead bodies is a big concern.

What are the challenges faced?

- œ **Maximum number of people or greatest number of years:** It might be interpreted as simply the number of people saved or it might be interpreted as the greatest number of years of life saved. And if maximising the number of people whose lives are saved is the overarching ethical goal, governments and medical staff need to establish how this is best achieved.
- œ **Ventilator occupancy:** Lifesaving ventilation is offered on a basis of prioritising those who will be most likely to survive as a result of the intervention. This may also be combined with the likely speed of their recovery – as this would free up ventilators for others sooner. This combination reflects the ethical goal by offering the highest probability that the greatest number of lives will be saved overall.
- œ **Discrimination against disadvantaged group:** But in high-pressure situations, any such approach will likely be simplistic – such as an algorithm based on the age of the patient and any health conditions. This could lead to disadvantaged groups being systematically discriminated against.
 - > The elderly and those with underlying health conditions, for example, could be unprioritised because they will be less likely to survive or take longer to recover.
 - > Even if additional considerations are added to the process – such as the potential quality of life or subsequent length of a person's life – these groups are likely to fare badly.
- œ **Healthcare workers:** There is an ethical consensus that healthcare workers have a *prima facie* duty to work. However, the obligation of healthcare workers to show up for their jobs is not absolute.

œ **Males over females?:** Another major ethical challenge revolves around gender. Males have been found to be at a greater risk of progressing to severe disease and even dying compared with females.

Why evaluation of ethics is important?

- œ Ethics is shaped based on the ingraining of values in subjects and the society in which they are inserted, and, from this set, each one proposes their actions.
- œ That being said, it is necessary to valuate to intervene.
- œ It is worth noting that the medical field assigns a different value to life, according to age, providing distinct care to children, adults, and the elderly.
- œ From this perspective, the ethical values necessary to ration healthcare resources in an epidemic have high prestige.
- œ It can converge into some proposals based on fundamental values, such as
 - > maximizing the benefits produced by scarce resources
 - > treating people equitably
 - > promoting and recommending instrumental values
 - > giving priority to critical situations

What needs to be done?

- œ **Positive discrimination:** Strict adherence to the overarching moral goal of maximising lives saved might also require aspects of positive discrimination. If, for example, the patient is a highly-skilled, older medic, then prioritising them might result in more lives overall being saved.
- œ **Maximize benefits:** The priority of limited resources should aim at saving as many lives as possible and maximizing improvements throughout life post-treatment. This premise is consistent both in the perspective of utilitarian and non-utilitarian ethics.
- œ **Privacy:** There has to be a balance between protecting a person’s right versus safeguarding public interests.
- œ **Clear ethical basis:** When it comes to life and death prioritisation, to be justifiable, these decisions must be made from a clear ethical basis.
- œ **Fair distribution/allocation of resources:** Hospitals must consider how they can distribute the resources they have fairly.
- œ **Effective evaluation of gaps and challenges:** Given the economic, societal, and operational ramifications of the COVID-19 pandemic, healthcare leaders should consider which aspects

of their business models are resilient and which will face challenges as value pools shift.

œ **Innovation:** The high human and economic costs associated with COVID-19 make it essential to rapidly accelerate and scale medical innovations, while ensuring that patient safety and quality of care remain central.

WHO on Ethics and COVID-19

- . WHO has established an international Working Group on Ethics and COVID-19 in order to develop advice on key ethical questions that Member States need to address.
- . The expert group also advises WHO’s technical units regarding ethical aspects of their COVID-related work.
- . Since its formation in February 2020, the group has been engaged in the following activities:
 - > Advice on ethical considerations in COVID-19 research
 - > Practical guidance on the application of ethical values central to COVID-19 research published in the journal “Public Health Ethics”
 - > A policy brief on resource allocation and priority setting in COVID-19 care
 - > Providing ethics input into the WHO’s Clinical Management Guidelines and training
 - > Feedback provided on the Solidarity Trial protocol
 - > Development of emergency standard operating procedures for human research committees to facilitate rapid review of protocols during the COVID-19 pandemic
 - > Advice on the criteria that must be satisfied for SARS-CoV-2 challenge studies to be ethically acceptable
 - > Considering other areas: Immunity certificates, MEURI (i.e., monitored emergency use of unregistered and experimental interventions) and the fair global allocation of vaccines, therapeutics, and diagnostics.

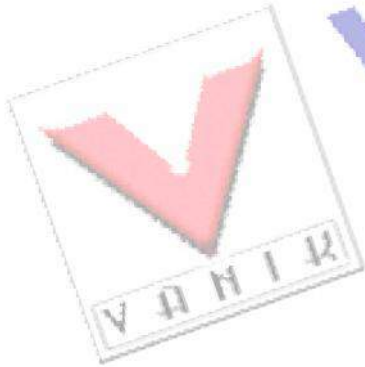
● **CONCLUSION**

Both government and healthcare workers need to be open, public and clear about the basis of selective prioritisation. It also needs to be made clear that criteria will be revisable as information and situations change. Such an approach would also need to be systematically enforced – so that universal and applied to all. Without such clarity and fairness, confidence, trust, solidarity and support for health systems would become irreparably damaged in the longer term.

SECTION: B

(PRELIMS)

CURRENT AFFAIRS



VANIK- IAS
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RIGHT OF THE PEOPLE TO THE SENTINEL ISLAND IS NON-NEGOTIABLE: ANSI

◎ **CONTEXT:** In a policy document, which comes almost two years after American national was allegedly killed by the Sentinelese on the Island, the Anthropological Survey of India (AnSI) says the “right of the people to the island is non-negotiable”.

◎ **ABOUT:** **Who are Sentinelese?**

- . The Sentinelese people are from an endangered Indian tribe living in North Sentinel Island, located near the Andaman Islands in the Bay of Bengal, India.

With a population of about 50 to 100, they are among the most isolated of nearly 70 PVTGs across the country.

- . They are a primitive hunter-gatherer tribe that entirely relies on the sea and the island forests for food and other resources.
- . Also, they are among the five in the Andaman and Nicobar Islands which include Great Andamanese, Onge, Jarawa, and Shompens.

They are **particularly vulnerable tribal group (PVTG)**.

Particularly vulnerable tribal group (PVTG)

- . **The particularly vulnerable tribal group (PVTG)** is a Government of India classification created with the purpose of enabling improvement in the conditions of certain communities with, particularly low development indices.
- . Currently, 75 tribal groups have been categorized by the Ministry of Home Affairs as Particularly Vulnerable Tribal Group (PVTG).



What are the key observations made by AnSI?

The following observations were made after the first detailed policy draft for the Sentinelese island, prepared at the request of the Andaman and Nicobar Administration.

- Any exploitation of the North Sentinel Island of the Andamans for commercial and strategic gain would spell the death knell for its occupants, the Sentinelese.
- Right of the people to the island is non-negotiable. These rights are unassailable, non-negotiable and unfringeable.
- The prime duty of the state is to protect these rights as eternal and sacrosanct.
- Therefore, their island should not be eyed for any commercial or strategic gain, for if it were to happen, it surely would be a death knell for its occupants.

Is India doing enough to protect the tribals?

- Indeed, the Indian Constitution is supposed to protect tribal interests, especially tribal autonomy and their rights over land, through the Fifth and Sixth Schedules.
- In India, most of the tribes are collectively identified under Article 342 (1&2) as “**Scheduled Tribes**”.
- Their right to self-determination is guaranteed by Part X: **The Scheduled and Tribal Areas – Article 244: Administration of Scheduled Areas and Tribal Areas.**
- Tribals in India are also protected under the **PESA Act** that was enacted on December 24, 1996 to enable tribal self rule in these areas.
- Then, there are the **Panchsheel Principles of Pandit Jawaharlal Nehru**, meant to guide government actions in dealing with tribal people.
- Though, India has very enlightened laws dealing with tribals and indigenous people after independence. The actual treatment meted out to tribal people has been mixed.

What needs to be done?

- **More knowledge about the tribe:** Along with maintaining the territorial integrity of the North Sentinel Island, the document calls for building a knowledge bank on the Sentinelese.
- **Study of culture, but from distance:** Since ‘on-the-spot study’ is not possible for the tribal community, anthropologists suggest the ‘study of a culture from distance’.

Value Addition

• Anthropological Survey of India

- œ Anthropological Survey of India is the only research organisation to pursue anthropological research in a Governmental setup.
- œ The Anthropological Survey of India’s genesis was from the Zoological and Anthropological section of the Indian Museum, which became the Zoological Survey of India in 1916.
 - > In 1945, Anthropology section of the Zoological Survey was carved out to become the Anthropological Survey of India (An.S.I) with Dr B.S.Guha as the founding Director, in 1946.

œ **Headquarters:** Kolkata, West Bengal

œ **Parent organisation:** Ministry of Culture, Government of India

AGRICULTURE COST OF PRODUCTION

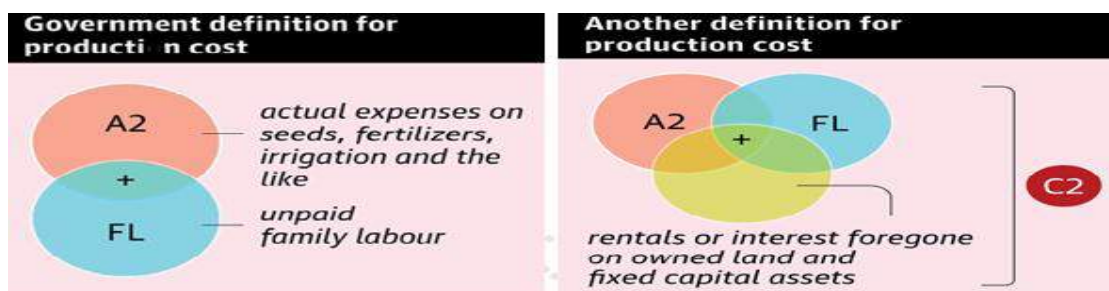
◎ CONTEXT:

The farmers across India are protesting and one of main reason behind the farmers’ protest is the Minimum Support Price (MSP) for crops which raises question on the cost of Production.

© **ABOUT:**

How the cost of agricultural produce is calculated?

- . Broadly, the costs are divided into two broad categories viz.
- . **Fixed costs:** These are fixed. In agriculture, land in some sense is a fixed capital. The other important items of fixed costs are implements and tools, machinery, farm buildings, work animals etc.
- . **Variable costs:** These costs vary with the production. One can increase or decrease their use. In agriculture, cost of seed, manure's and fertilizers, irrigation, labour are the variable costs.
- . The sum of fixed costs and variable costs forms the 'total cost', when the total expenditure is deducted from the total returns (income), one gets the 'net profit'.



How the different costs are categorized?

- . **Cost –A:** Actual paid out costs for owner cultivator. This cost approximates the actual expenditure incurred in cash and kind and includes the following items:
 - œ Hired human labour
 - œ Owned and hired bullock labour
 - œ Seeds
 - œ Manures and fertilisers
 - œ Implement charges
 - œ Land renewal and other taxes
 - œ Irrigation charges
 - œ Other miscellaneous charges
- . **Cost –A-1:** Corresponding cost for the tenant cultivator, i.e. including rent actually paid by him.
- . **Cost –A-2:** Cost A plus imputed value of own labour.
- . **Cost – B:** Cost A plus rental value of owned land and imputed interest on demand capital.
- . **Cost – C:** total of all cost items, actual as well as imputed.

How is MSP Calculated?

- . The Commission for Agricultural Costs & Prices (CACP) in the Ministry of Agriculture would recommend MSPs for 23 crops.
- . These included 14 grown during the kharif/post-monsoon season and six in rabi/winter (wheat, barley, chana, masur, mustard and safflower), apart from sugarcane, jute and copra.
- . The CACP considered various factors while recommending the MSP for a commodity, including cost of cultivation.



- . It also took into account
 - œ the supply and demand situation for the commodity
 - œ market price trends (domestic and global) and parity vis-à-vis other crops
 - œ implications for consumers (inflation), environment (soil and water use)
 - œ terms of trade between agriculture and non-agriculture sectors

Swaminathan Committee

- . The Swaminathan Committee prescribed three variables to determine the production cost. These three variables are:
 - > A2
 - > A2+FL
 - > C2
 - . As per the Committee, the ideal formula to calculate the MSP would be:
 - . **MSP = C2+ 50% of C2**
- . **The 'Price Policy for Kharif Crops:** The Marketing Season 2018-19' of the CACP stated the given 1.5 times formula to calculate the MSP:
 - . **1.5 times MSP Formula = 1.5 times the A2+FL costs**

GOVERNMENT EXPLORING SETTING UP BAD BANK, ALL OTHER OPTIONS

◎ CONTEXT:

In order to improve the health of the country's banking sector, the government is exploring all options, including setting up of a bad bank.

◎ ABOUT:

What is bad bank?

- . A bad bank buys the bad loans and other illiquid holdings of other banks and financial institutions, which clears their balance sheet.
- . Currently, banks sell their bad loans to asset reconstruction companies as per the prudent norms of the Reserve Bank of India.

What is Non-Performing Asset?

- . Non Performing Asset (NPA) is those kinds of loans or advances that are in default or in arrears.
- . In other words, these are those kinds of loans wherein principal or interest amounts are late or have not been paid.
- . These are also the kinds of loans where the lender considers the loan agreement to be broken and the receiver of the loan is unable to pay back the loan amount.

Types of NPA

- . **Standard Assets:** It is a kind of performing asset which creates continuous income and repayments as and when they become due. These assets carry a normal risk and are not NPA in the real sense of the word. Hence, no special provisions are required for standard assets.
- . **Sub-Standard Assets:** Loans and advances which are non-performing assets for a period of 12 months, fall under the category of Sub-Standard Assets.



- . **Doubtful Assets:** The Assets considered as non-performing for a period of more than 12 months are known as Doubtful Assets.
- . **Loss Assets:** All those assets which cannot be recovered by the lending institutions are known as Loss Assets.

When a loan is classified as NPA?

- . Non Performing Assets are basically Non Performing Loans.
- . In India, the timeline given for classifying the asset as NPA is 180 days. As against 45 to 90 days of international norms.

THE INDIA STATE-LEVEL DISEASE BURDEN INITIATIVE

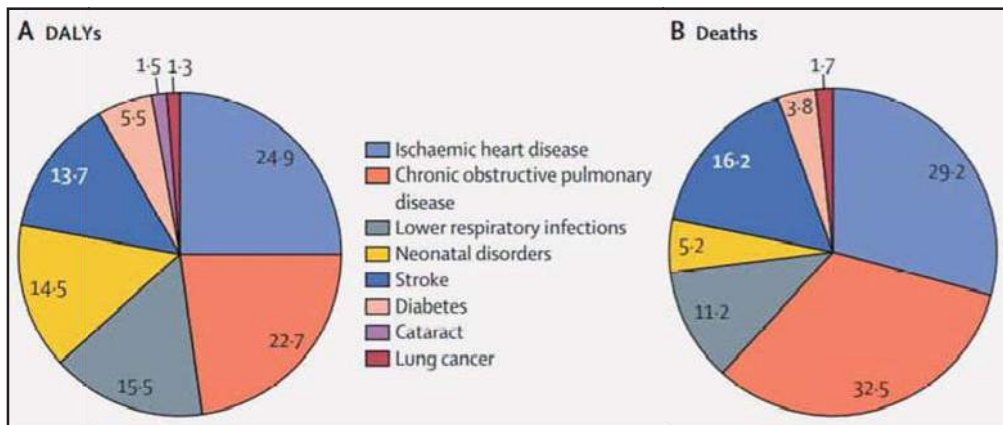
◎ **CONTEXT:** **Some 1.7 million Indians died due to air pollution in 2019, according to a report by interdisciplinary journal Lancet Planetary Health.**

◎ **ABOUT:** **What is the report all about?**

- . The report '*The India State-Level Disease Burden Initiative*' estimates health and economic impacts of air pollution, both from indoor and outdoor sources.
- . The findings in the paper highlight that the disease burden due to household air pollution is reducing in India but the same has increased due to ambient outdoor air pollution.
- . The report released December 21, 2020.
- . Key-findings of the Report
 - . The toll in India was 18 per cent of the total deaths in the country.
 - . The report has both good and bad news for India:
 - . **Indoor, or household, air pollution** caused 64 percent fewer deaths in the last two decades (1990-2019).
 - . **Outdoor air pollution, or ambient air pollution**, is not only increasing but also killing more. The death rate from outdoor ambient air pollution has increased during this period by 115 percent.

What about economic losses?

- . **Premature deaths and morbidity:** India has lost 1.4 percent of GDP due to premature deaths and morbidity from air pollution.
- . It is equivalent to Rs 2,60,000 crore in monetary term, more than four times of the allocation for healthcare in the Union budget for 2020-21.
- . The economic loss due to lost output from premature deaths and morbidity attributable to ambient particulate matter pollution ranged from \$9.5 million in the small northeastern state of Arunachal Pradesh to \$3188.4 million in the northern state of Uttar Pradesh.
- . **Lung disease:** Of the total economic loss of \$36.8 billion, lung diseases caused by air pollution accounted for the highest share- 36.6 percent.
 - . 36.6% was from lung diseases, which included chronic obstructive pulmonary disorder (21.1%), lower respiratory infections (14.2%), and lung cancer (1.2%).
 - . The rest was from ischaemic heart disease (24.9%), stroke (14.1%), diabetes (8.4%), neonatal disorders (13.3%), and cataract (2.7%).



- **Loss in major states:** The economic loss due to air pollution as a percentage of the state GDP was higher in the northern and central India states, with the highest in Uttar Pradesh (2.2 percent of GDP) and Bihar (2 percent of GDP).
- Delhi had the highest per-capita economic loss due to air pollution, followed by Haryana in 2019.
- **Indoor air pollution:** In term of economic losses attributable to indoor air pollution ranged, Goa had the least loss at \$7.6 million and UP the highest at \$1829.6 million.

INDOOR POLLUTION IS AS DEADLY AS ITS OUTDOOR COUNTERPART

◎ **CONTEXT:**

Indoor air pollution is just as lethal as the outdoor variety. Indoor, or household, air pollution caused 64 per cent fewer deaths in the last two decades (2000-2019) in India, according to a report by interdisciplinary journal *Lancet Planetary Health*.

◎ **ABOUT:**

What is indoor air pollution? Which air pollutants exist indoor?

- It refers to the physical, chemical, and biological characteristics of air in the indoor environment within a home, building, or an institution or commercial facility.
- A number of air pollutants have been recognised to exist indoors, including NO_x, SO₂, ozone (O₃), CO, volatile and semi-volatile organic compounds (VOCs), PM, radon and microorganisms.
- Some of these pollutants (NO_x, SO₂, O₃, and PM) are common to both indoor and outdoor environments and some of them may originate from outdoors.
- These air pollutants can be inorganic, organic, biological or even radioactive.

What factors affect indoor air quality?

- Indoor air quality is affected by many factors, including:
 - œ **Type and running conditions of indoor pollution sources**
 - œ **Ventilation conditions:** Air pollutants may accumulate in the indoor environment if the indoor air is not well ventilated, which seriously affects the health of the inhabitants.
 - œ **Indoor activities (cooking with dirty fuel):** According to the World Health Organization (WHO), around three billion people, mostly women in the villages of India and in other parts of the world still cook and heat their homes using dirty solid fuels.



- . These include waste wood, charcoal, coal, dung and abundantly available crop wastes. These are burnt on open fireplaces, cooking stoves etc.
- . This generates a large amount of air pollutants such as
 - œ sulphur dioxide(SO₂)
 - œ nitrous oxides(NO_x)
 - œ carbon monoxide (CO)
 - œ particulate matter (PM)

Effects of indoor air pollution

- . The effect of these air pollutants on humans depends on their toxicity, concentration and exposure time and may vary from person to person.
- . **Sick building syndrome (SBS):** The most common effect is called sick building syndrome (SBS), in which people experience uncomfortable or acute health effects such as irritation of nose, eyes and throat, skin ailments, allergies and so on.
- . **Premature deaths:** The WHO fact sheet on household air pollution due to indoor pollutants states that 3.8 million premature deaths occur annually.
- . These include stroke, ischaemic heart diseases, chronic obstructive pulmonary diseases and lung cancer, all of which are attributed to exposure to household air pollution.

TSO KAR WETLAND COMPLEX

◎ CONTEXT:

In a latest development, India has added Tso Kar Wetland Complex in Ladakh as its 42nd Ramsar site, which is a second one in the Union Territory (UT) of Ladakh.

◎ ABOUT:

Ladakh's Tso Kar Wetland Complex

- . The Tso Kar Basin is a high-altitude wetland complex.
- . Situated in the **Changthang** region of Ladakh, it consists of two principal waterbodies,
- . **Startsapuk Tso**, a freshwater lake to the south
- . Tso Kar itself, a hypersaline lake to the north
- . It is called Tso Kar, meaning white lake, because of the white salt efflorescence found on the margins due to the evaporation of highly saline water.
- . The Tso Kar Basin is an **A1 Category Important Bird Area (IBA)** as per Bird Life International and a key staging site in the Central Asian Flyway.

What is about the fauna of the region?

- . The site is also one of the most important breeding areas of the Black-necked Crane (*Grus nigricollis*) in India.
- . This IBA is also the major breeding area for Great Crested Grebe (*Podiceps cristatus*), Bar-headed Geese (*Anser indicus*), Ruddy Shelduck (*Tadorna ferruginea*), Brown-headed Gull (*Larus brunicephalus*), Lesser Sand-Plover (*Charadrius mongolus*) and many other species.

Significance of Wetlands

- . Wetlands provide a wide range of important resources and ecosystem services such as food, water, fibre, groundwater recharge, water purification, flood moderation, erosion control and climate regulation.
- . They are a major source of water and our main supply of freshwater comes from an array of wetlands which help soak rainfall and recharge groundwater.

What is the aim of the Ramsar List?

- . A Ramsar site is a wetland site designated to be of international importance under the Ramsar Convention. The **Convention on Wetlands**, or the Ramsar Convention, is an intergovernmental environmental treaty established in 1971 by UNESCO, which came into force in 1975.
- . To develop and maintain an international network of wetlands
- . To help in conservation of global biological diversity and for sustaining human life
- . To maintain ecosystem components, processes and benefits
- . Title> Science & Technology (GS-III)

WORLD'S UGLIEST ORCHID

◎ **CONTEXT:**

A newly described species of orchid from Madagascar has been called "the ugliest orchid in the world".

◎ **ABOUT:**

- The leafless orchid, named *Gastrodia agnicellus*, grows underground in decaying leaf litter for most of its life cycle, and is nourished by fungus.
- . It is one of 156 plants and fungal species named by Kew scientists and their partners around the world in 2020, has been crowned "the ugliest orchid in the world".
- . The 11 mm flowers of this orchid are small, brown and rather ugly.
- . Like most orchids, this species is a **perennial plant**, meaning it could live for many years, and has a symbiotic relationship with a fungus.
- . While other orchids only depend on their fungus symbiote for food at the start of their lives, *Gastrodia agnicellus* doesn't have any cells for photosynthesis so relies on its fungus for its entire life.
- . **Status:** Although assessed as a **threatened species**, the plants have some protection because they are located in a national park.

Orchids

- . Orchids are a family of **monocotyledons**. They have, like other monocots, a single seedling leaf and their floral parts in threes.
- . Orchids are one of the largest families of flowering plants, challenging the daisy or sunflower family, the **Asteraceae (Compositae)**, for the title of the largest of all families.
- . Currently there are known to be 25,000 species of orchids and estimates, based on the current rate at which new species are being discovered and described.
- . Orchids are a cosmopolitan family found all the way from within the Arctic Circle to Tierra del Fuego and the islands south of Australia.
- . They are absent only from open water and from true deserts.
- . The smallest orchid is thought to be *Bulbophyllum minutissimum*.

L&T CONSTRUCTION 3D PRINTS INDIA'S FIRST BUILDING WITH REINFORCEMENT

◎ **CONTEXT:**

L&T Construction, the construction arm of the \$21 billion technology, engineering & construction conglomerate, Larsen & Toubro, has 3D printed a G+1 (Ground plus one) building with reinforcement for the first time in India.

© ABOUT:

- The 3D printed building has a built up area of 700 sq. feet and is located at L&T Construction's Kanchipuram facility.
- It has been built with a special, in-house developed concrete mix using indigenously available regular construction materials.



- The building was printed with both vertical reinforcement bars and horizontal distributors using welded mesh, that satisfy provisions in the Indian Codes and optimise the cost of construction.
- Barring the horizontal slab members, the entire building structure was 3D printed 'Cast in Situ' at the job site in an 'open to sky' environment within 106 printing hours, using a fully automated 3D printer.
- What is 3D Printing?
 - 3D printing is a process, in which the material is printed under computer control to build a 3-dimensional product, typically layer by layer.
 - It is predominantly used in manufacturing industries to print rapid prototypes, complex shapes and small batch production using special polymers, metal alloys etc.
 - 3D printing is the opposite of subtractive manufacturing which is cutting out / hollowing out a piece of metal or plastic with for instance a milling machine.
 - 3D printing with concrete is still largely work in progress across the globe.
 - Significance of the new development
 - With the country aggressively pursuing the objective of creating 60 million houses under the Housing for All by 2022 programme, this achievement will certainly give a huge fillip to the mass housing segment.
 - 3D printing will not only accelerate the pace of construction, but also significantly improve build quality.

NEW STRAIN OF COVID-19 'OUT OF CONTROL

© CONTEXT:

Recently, the new SARS-CoV-2 variant has been revealed to be the reason behind the rapid surge in Covid-19 cases in South and East England. It is being referred to as VUI (Variant Under Investigation) 202012/01, or the B.1.1.7 lineage.

◎ ABOUT:

- The new strain spotted in the UK has undergone mutation in the spike portion of the virus.
- **Spikes** are proteins protruding from the virus. They actually bind the virus with the cells of the body and then gain an entry.
- The strain is a derivative of the **D614G mutation**, which appeared independently in multiple locations.
- However, only one lineage of that mutation spread rapidly across the globe, driven by human behaviour, and is now found in nearly all sequences.
- Although there is still no absolute certainty about the mutant COVID-19 strain, three things have emerged from the spread:
 - It is rapidly replacing other versions of the coronavirus.
 - Parts of the virus have demonstrated mutations.
 - Some of these mutations have already been found to increase the ability to infect cells.
- With these three factors, it is believed that the new mutant virus strain can spread easily.

How do mutations occur?

- When the human body develops antibodies against a virus to prevent a disease outbreak, a virus must change its envelope, or outer surface, to avoid being recognized by the antibodies and immune cells.
- Thus, to survive, a virus must change its outer proteins and develop new strains.
- To replicate, viruses use a host cell in an infected individual. When viruses infect such a host cell, they introduce genetic information from their nucleus into the infected cell.
- In this way, the body's cells reproduce millions of copies of the virus.
- However, small copying errors occur in each of these reproductions, and each of these errors also changes — or mutates — the genetic code of the virus.

How many times has the Sars-CoV-2 virus mutated?

- The virus was first reported in Wuhan and since then, it is said to have mutated many times, most of which have gone unnoticed.
- So far, scientists have noted two distinct set of mutations in the virus that causes Covid-19:
 - œ the H69/V70 deletion
 - œ the D614G

How does the body react to mutations?

- Normally, the human body is able to protect itself against viruses. It produces antibodies that defend against viral attacks and trigger immunity to the pathogen.
- However, if the pathogen has already mutated and the antibodies produced are programmed to an older version of the pathogen, then these antibodies are much less effective.
- That's why humans regularly get the common cold.

SHIGELLA INFECTION

◎ CONTEXT:

A number of cases of shigella infection have detected in Kozhikode district of Kerala.

What is shigella infection?

- Shigellosis or shigella infection is a contagious intestinal infection.
- **Caused by:** It is caused by a genus of bacteria known as **shigella**.
- The same bacteria is also understood to be the prime reason for the occurrence of diarrhea especially among children in the African and South Asian countries.
- The lethal bacteria enters the body through ingestion and harms the epithelial lining of the colon resulting in severe inflammation and subsequent damage to the cells.
- The bacteria is so lethal that only a minute number of bacteria can cause havoc in a person's body.
- **Transmission:** It gets transmitted from person to person after the bacteria has been ingested by the person accidentally.

What are the symptoms?

- People with shigellosis may start experiencing symptoms within one or two days of the entry of germs in the body.
- The common symptoms are:
 - œ diarrhea (often bloody and painful)
 - œ stomach pain
 - œ fever
 - œ nausea
 - œ vomiting
- There have been cases too where people don't experience any signs of the bacterial infection.

How to prevent the disease?

- Wash hands with soap especially after dealing with a child's diaper and before preparing/ eating food.
- While swimming in pools and lakes, it's advisable not to swallow water.
- Avoid eating contaminated food especially from the street in unhygienic conditions.
- Drinking boiled water is advised.



OCS SELECTIONS OF 2018

1 SELECTION IN EVERY
2 SELECTION ARE FROM VANIK

7 IN TOP 10
11 IN TOP 20
24 IN TOP 50
47 IN TOP 100
48% SELECTION FROM VANIK



DEBASIS PANDA



RITUPARNA MOHAPATRA



AKASH KUMAR PANDA



SANTOSHINI DAS



NARAYANI P. PANDA



SHAKTI MOHAPATRA



SMARANIKA TULO



Sampat Ku. Dash



Serada P. Panda



Sidhant Narayan



Akash Pattnaik



Priti R. Rath



Rajiv Das



Abhishek Sahu



Annanya Tripathy



Prasenjit Mishra



Debajyoti Panda



Avipsa Mohanty



Dillip Satapathy



Nibedita Parida



Rashmi Prava Das



Asima Padhi



Om Prasad



Jyotibikash Dash



Narayan Behera



Suvasnigdha



Subrat Ku. Swain



Biswa Tripathy



Upasana Padhi



Bibhuti Satapathy



Avilash Purohit



Birendra Tripathy



Himanshu B. Pale



Sambit Ku. Majhi



Subhadra



Byomakesh



Bishnu Govind



Tanmaya Nayak



Ashutosh Matarji



Anshuman Sarangi



Krishna Padhi



Madhusmita Nanda



Adarsh A. Tripathy



Sanishree Mallick



Om Prakash Parida



Md. Azharuddin Khan



Rajesh Ku. Samal



Tattwomasi



Amit Biswal



Agurba R. Aich



Trisandhya Patra



Bani Satabdi Dash



Harekrushna Sahu



Nirmal Ku. Bhouli



Ajit Ku. Uttaray



Manoja Ku. Behera



Ananda Ch. Palei



Sushree Supriya



Dhiren Ku. Nayak



Nivedita Nayak



Biranchi N. Jagat



Sridhar Ku. Sethi



Ananta Ku. Nayak



Abhijit S. Swain



Gyanaranjan Majhi



John Major Dalai



Jyoti P. Sethi



Arjun Majhi



Subha P. Kanungo



Deepak Ku. Jena



Rashmirani Sonapaty



Subha Kanta Naik



Madhusmita Samal



Gitu Behera



Madhusmita Singh



Manaranjan Suna



Prachi



Tapan Ku. Malik



Manoj Ku. Behera



Manaswee Sethi



Bhabani Pradhan



Upanjali Majhi



Satyabrata Naik



Sagar Palo



Prasanti Pradhan



D. Satyabhusan



Prem Chand Jani



Mrutunjaya Sabar



Gouranga Ghosh



Meera Naik



Deepak Bara



Debasish Patra



Bhabesh Majhi



Vikas Mundari



Sandeep Singh



Prafulla Muduli



Smrutiranjana Tudu



Lalit Ku. Naik



Phalguni Sabar



Sunita Panda

And Many More Selections