

# CURRENT AFFAIRS

WEEKLY

**WEEK-1**  
**DECEMBER**  
**2020**

## MAINS

**GS-I**

● The diverse nature of Indian society

**GS-II**

● UAPA and the growing crisis of judicial credibility in India

● 2020 Afghanistan Conference: A reinforced commitment

**GS-III**

● China's Negative Yield Zero Coupon Bond, is becoming a 'big Deal'

● China Threatens India with 'Liquid Bomb'

**GS-IV**

● The Ethical Questions that Haunt Facial-recognition Research

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GEOGRAPHY

● Deficient Northeast Monsoon  
● Glistening 'blue tide' along Mumbai

ECONOMY

● Land inequality threatens livelihood of 2.5 bln: Report  
● UMANG's international version launched

ENVIRONMENT

● Pilibhit Tiger Reserve Gets Global Award for Doubling Tiger Population

SCIENCE & TECHNOLOGY

● China Launches Chang'e-5 Moon Probe to Bring Back Lunar Rocks

● Copernicus Sentinel-6 Michael Freilich satellite

● Desalination Plants

● India to Launch Deep Sea Mission

● IRNSS now part of World Wide Radio Navigation System

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

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

# CURRENT AFFAIRS ANALYST

WEEK- 1 (DECEMBER, 2020)

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LIVE & INTERACTIVE CLASSES

## PATHWAYS

for UNDER GRADUATES

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**10** NOVEMBER  
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## OPTIONAL FOUNDATION

**BATCH - 2**

**PUBLIC ADMINISTRATION  
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By: ASUTOSH PANDEY



**21**  
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**BATCH - 2**

**GEOGRAPHY  
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By: Dr. PIYUSH CHOUBEY



**07**  
DECEMBER

# **SECTION: A**

## **(MAINS)**

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**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

- India is scaling new heights of development while many voices are going unheard; these are the voices of social problems.
- These are the areas which do not become obvious but are leading to pulling India backwards in its climb to success.
- 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.
- 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

- Type of social issue: Social inequality, social stratification and social disorganization
- 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.
- According to the 2013 estimation, by Indian Planning Commission 269 million people i.e. 22% of the population lives under the poverty line.
- The abolition of this problem requires imparting education to save more generations from the quicksand of poverty.

### ◎ CORRUPTION

- Types of social issues: Economic issues
- India being a democratic nation has its downfall because of them under the table practice.
- 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

- Types of social issues: Education deficiency
- Terrorism is backstabbing the nation through its wrath from the time of its partition.
- 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.
- Such attacks have not halted, though many surgical strikes and peace talks are done by India.

#### Communalism

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

#### Illiteracy

- Types of social issues: Education inequality and social inequality

- 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.
- 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.
- Education should be motivated by the Government or at the individual level by joining hands with NGO to teach underprivileged sections.

### **Violence against Women**

- Types of social issues: crime and the justice system
- There is a new black spot emerging over India as tourists globally warned about the rape history of India.
- This range with an array of brutal crimes is it inside the house or outside.
- The Delhi Nirbhaya case shocked the country and now the capital of the country is considered rape capital.
- 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?**

- There is a huge role of migrations in building of nations by diverse communities through alliances at multiple levels.
- Talking of India, diversity has been the hall mark of this society from long. Christianity entered India, right in first century.
- Already different religious traditions, Jainism Buddhism were present here.
- 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.

- The Muslim invaders coming from North West were more for reasons related to power and wealth.
- 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.
- UK has abundant number of them, Similarly America and Canada, now Australia has lot of migrants from India.
- Earlier many Indians did migrate to Caribbean's, Mauritius, and Ceylon among other places.

### **The positive side of diversity**

- 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.
- In the area of religions Bhakti and Sufi traditions have upheld the diversity.
- 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.
- 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.

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# 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

- 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.
- In recent months, however, this situation has been changing.
- As 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.
- The institute calls itself the world's largest data collection project on democracy.
- 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?

- 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.
- For the first time since 2001, autocracies are in the majority and comprise 92 countries that are home to 54% of the global population.
- 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.
- India has continued on a path of steep decline, to the extent, it has almost lost its status as a democracy.
- The report lists the top 10 regressing countries by the magnitude of change on the LDI over the past 10 years.
- 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?

- The UAPA is largely an anti-terror law that is supposed to be applied only in rare instances.
- 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.
- Going by the statistics of the National Crime Records Bureau (NCRB), the year 2019 saw the biggest jump in cases filed under the UAPA.
- As many as 1,226 people have been arrested under the controversial anti-terror law, a 33% increase from 2016.
- In 2019 itself, as many as 11 percent of cases were closed by the police for want of evidence.
- A very low conviction rate indicates that the UAPA is indiscriminately used by the police to harass and intimidate.
- 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?

- 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).
- The UAPA was enacted in 1967 to promote and ensure national integration.
- 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.
- 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.
- Similar to previous laws, POTA defined "terrorist" and "terrorist activities" rather vaguely. This allowed for indiscriminate applications by police and security agencies.
- 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.
- For instance, the government repealed POTA in 2004, amended the 1967 UAPA to make it an omnibus preventive detention law.

- UAPA expanded the definition of 'unlawful activity' to include 'terrorist act' and 'terrorist organization', which were key derivatives of POTA.
- 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.
- In July 2019, the government further amended the Act giving the State and its security agencies far more expansive teeth.
- 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.
- 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?

- 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.
- For denotification, an application is to be made to the Central Government. To conclude such an application, a Review Committee is set up.
- The Chairperson of this Committee, though a High Court Judge, is appointed by the Central Government.
- 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.
- 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

- 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.
- 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.

- 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.
- 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.
- 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.
- 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.
- 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.
- Further, being granted bail would be on the condition of the accused producing materials or evidence that can disprove the allegations.
- 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.
- 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?

- The lower courts are showing extra caution while granting bail in UAPA cases.
- 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.
- 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.
- 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.
- 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.
- 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.

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## 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

- 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.
- The conference took place with the theme "Peace, Prosperity, and Self-Reliance" amid fluidity and uncertainty in global geopolitics.
- 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.
- 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.
- 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?

- 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.
- The idea of the republic and the constitutional democracy have manifested in vigorously working government bodies and various social institutions.
- 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.
- 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).
- The orientation of this accomplishment is self-evident and justifies the need to continuously fortify the gains achieved over the past two decades.
- 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.
- 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.

- 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.
- 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

- Political uncertainty: At the same time, Afghanistan continues to experience insecurity and political uncertainty.
- 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.
- Poverty: Poverty is expected to remain high, driven by weak labor demand and security-related constraints on service delivery.
- Conflict: Conflict is ongoing, and 2019 was the sixth year in a row when civilian casualties in Afghanistan exceeded 10,000.
- 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?

- 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.
- 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.
- Afghanistan also represents investment potential for Indian companies in several sectors. Indian private sectors are seen as a driver towards prosperity in Afghanistan.
- 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

- 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?

- 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.
- Investment: Since 2001, India has invested over \$US3 billion in Afghanistan, supporting almost every sector of Afghan society, polity, and economy.
- 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.
- 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).
- 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.
- 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**

- 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
- 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.
- 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?**

- 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.
- It signals that India is finally shedding the hesitations of history.
- New Delhi has had a bitter experience with the Taliban.
- 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?**

- An interlinked set of mitigation strategies could help India protect its interests:
- 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.
- 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.
- 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.

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# 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

- 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.
- Last week, China sold negative-yield debt for the first time, and this saw a high demand from investors across Europe.
- As yields in Europe are even lower, there was a huge demand for the 4-billion-euro bonds issued by China.
- 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%.
- 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.
- 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?

- Negative-yield Bonds are debt instruments that offer to pay the investor a maturity amount lower than the purchase price of the bond.
- They are financial instruments that cause purchasers to lose money.
- 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.
- Sub-zero debt is growing and corporate issuers are starting to issue bonds with negative yields as well.
- 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?

- 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.

- 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  $-0.75\%$ .
- 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.
- 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.
- 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?**

- 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.
- 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.
- 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.

- 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.
- 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**

- 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.
- 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.
- 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.

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# 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

- 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.
- 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.
- 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.
- 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.

- 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.
- 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?

- 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.
- 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.
- According to SCMP, at least 11 hydroelectric projects along the river have been operating or being planned by China over the past decade.
- The largest among the three known to be in operation is Zangmu, which started to fully operate in 2015.
- Hydropower stations in Bayu, Jiexi, Langta, Dakpa, Nang, Demo, Namcha, and Metok towns in Tibet are either on the drawing board or under construction.
- 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.
- 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 Shumatan 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?

- India does not have a water-sharing agreement with China, but both sides share hydrological data.
- 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.
- 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?

- 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.
- 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%).
- 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).

- 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.
- 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.
- 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?

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

### Water constraints

- 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

- 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.
- Rapid urbanization and pollution: Severe pollution of its surface and groundwater caused by rapid industrialisation is a source of concern for Chinese planners.

- 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.
- 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

- Water-stress: India is severely water-stressed as well. In summer, a vast majority of urban areas face water shortage.
- Population burden: Similar to China, India has 17 per cent of the world's population and 4 per cent of water.
- 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?

- 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.
- 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.
- Strengthening disaster-management system: India should also consider strengthening our disaster-management system, earmarking key areas where its people may get affected.
- Effective strategy: The concrete disaster management strategy will save precious lives in the future.
- 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.

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# 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

- 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.
- 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.
- 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.
- 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.
- 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?

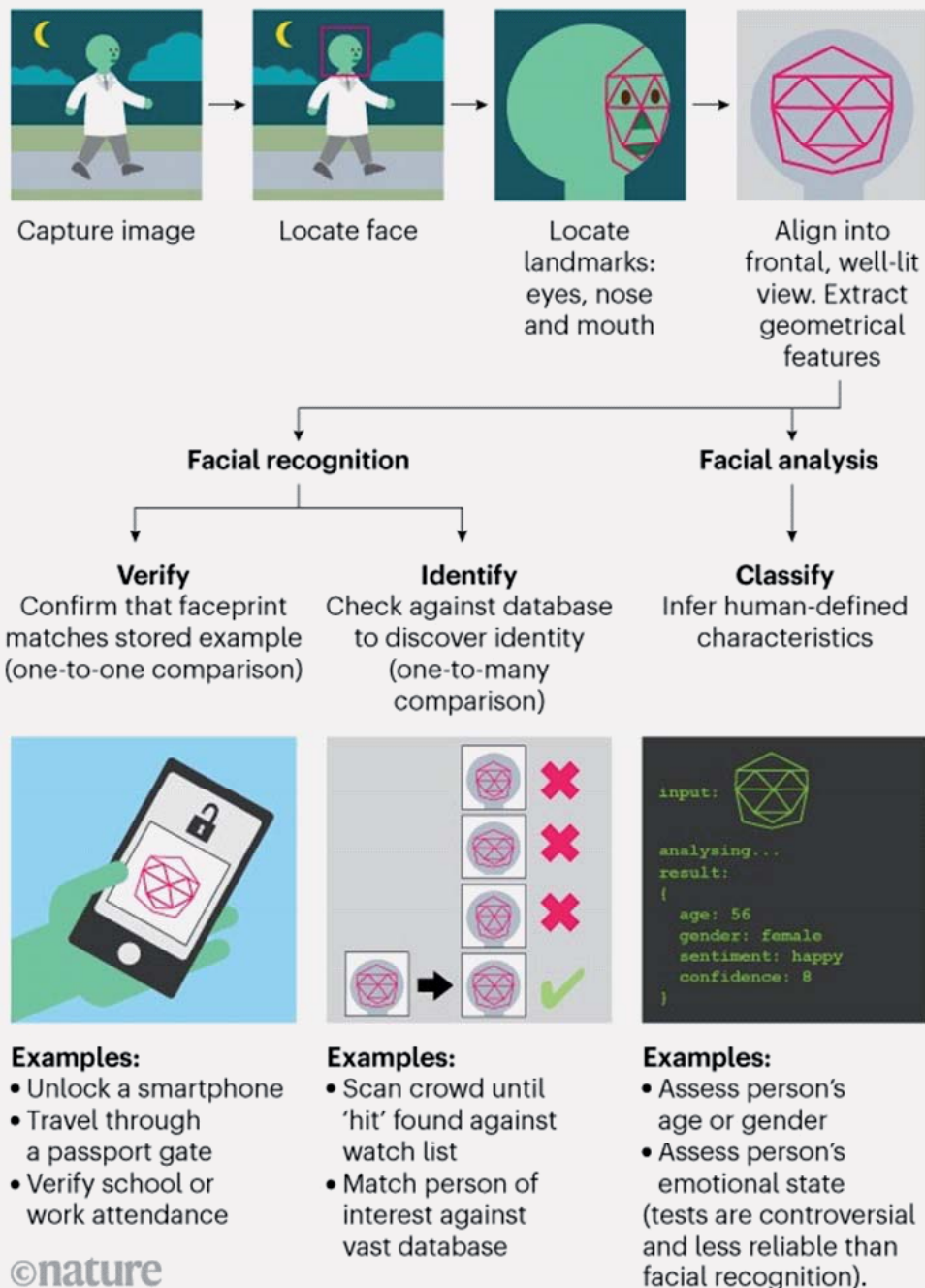
- Facial recognition is a biometric technology that uses distinguishable facial features to identify a person.
- Facial recognition is a subcategory of biometrics. It's made possible by advanced computing components, such as processors and memory, and Artificial Intelligence tools, such as machine learning.
- Facial recognition is when a device uses a camera to identify a face for security or other purposes.
- 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.
- 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.
- 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.
- 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

- 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.
- 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.



- Since then, the AFRS is currently being leveraged to make police forces in India more efficient.
- 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.

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



- Further iterations are currently being explored through machine learning to enhance it.
- 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).
- 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**

- **Threat to privacy:** The biggest drawback for facial recognition technology in most people's opinions is the threat to an individual's privacy.
- **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.
- **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.
- **Violates personal rights:** Countries with limited personal freedoms, commonly use facial

recognition to spy on citizens and arrest those deemed troublemakers.

- **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?**

- The direct implementation of such technologies has not been recognized by law.
- 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.
- Currently, in India, there is no specific law which authorizes deployment of these technologies.
- 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.
- 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?**

- 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.
- 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.
- 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?**

- 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.

- 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

- 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.
- 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.
- 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.
- 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).
- 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

- Questionable research projects have popped up in the United States, too.
- 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".
- The announcement triggered a wave of criticism, as had previous studies that hark back to the discredited work of nineteenth-century physiognomists.

- 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).
- 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.
- 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

- 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.
- 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.
- 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.
- 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.
- 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.

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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:**
  - the southwest monsoon
  - 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**
  - The deficiency of rainfall is linked it to the prevailing La Niña conditions in the Pacific Ocean.
  - 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.
  - Together, the El Niño and La Niña phenomena are termed as El Niño Southern Oscillation (ENSO).
  - These are large-scale ocean phenomena which influence the global weather — winds, temperature and rainfall.
  - They have the ability to trigger extreme weather events like droughts, floods, hot and cold conditions, globally.
  - 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.
  - Meteorologists record the sea surface temperatures for four different regions, known as Niño regions, along this equatorial belt.
  - Depending on the temperatures, they forecast either as an El Niño, an ENSO neutral phase, or a La Niña.

## 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:**
    - The size and value of land that people have access to or hold
    - Level of security of tenure that people have
    - Actual control that people have, including their decision-making power over land and
    - 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.

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## PILIBHIT TIGER RESERVE GETS GLOBAL AWARD FOR DOUBLING TIGER POPULATION

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#### ◎ 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 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.
  - 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.

## 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

### 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.

## 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:
  - To ensure the continuity of sea-level observations into the fourth decade

- 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.

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## INDIA TO LAUNCH DEEP SEA MISSION

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### ◎ 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?

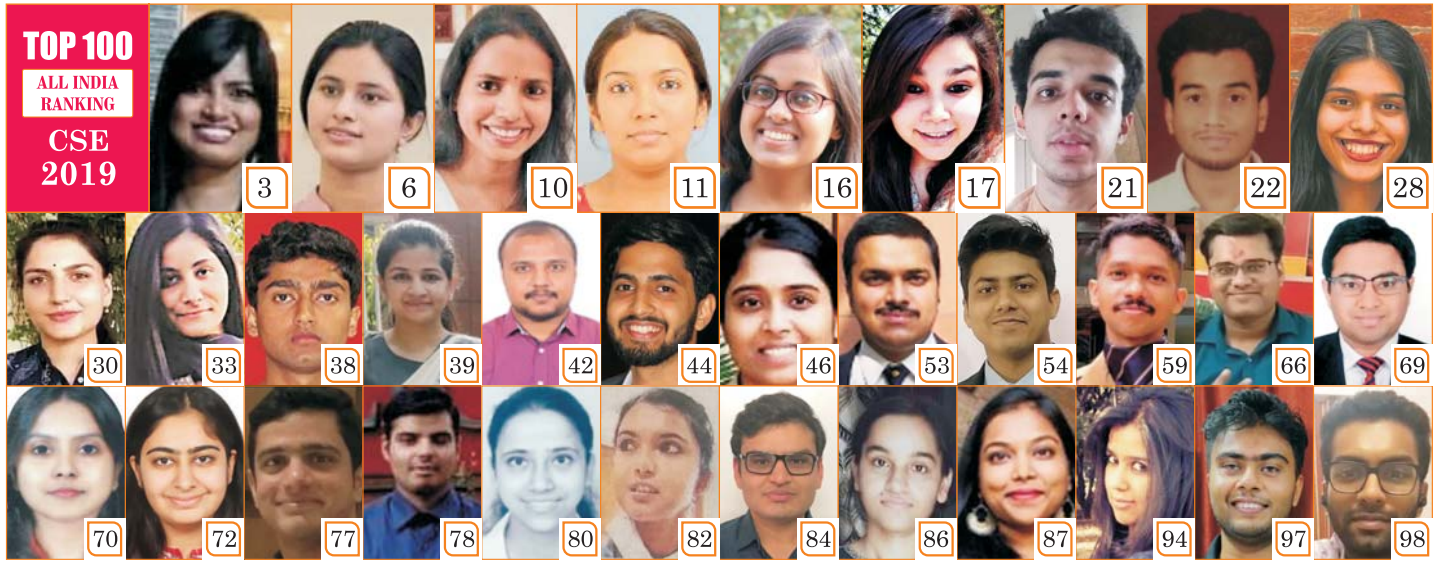
- The IMO is the United Nations' specialised agency responsible for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.
- With the recognition as a component of the of the World-wide Radio Navigation System (WWRNS), the Indian navigation system is similarly 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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**SUCCESS IS A PRACTICE WE DO!**

