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# - Disclaimer -

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

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

### CURRENT AFFAIRS ANALYST WEEK- 1 (JUNE, 2021)

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# IAS 2022 GS FOUNDATION



# SECTION: A (MAINS)

# **CURRENT AFFAIRS**

## ASSESSMENT OF GEOLOGICAL FEATURE OF LAKSHDWEEP

### CONTEXT

The tiny islands that make up the Union Territory of Lakshadweep are in turmoil. The islanders are upset about a series of recent disruptions in their lives and apprehensive about a set of proposed laws with the potential to alter the very character of the archipelago.

### • BACKGROUND

- Known originally as 'Laccadives', Lakshadweep is an enchanting group of islands in the Arabian Sea between N. Lat. 8°-12°30' and between E. Long. 71°-74°. It forms an archipelago in the northern edge of the 2,500 km long, Chagos-Maldive-Laccadive sub-marine mountain ridge
- Destructive human activity, rising temperatures in the Arabian Sea and increasing ocean acidification are pushing the coral ecosystem in Lakshadweep to the verge of breakdown
- Despite heavy rainfall, these islands are acutely water-stressed.
- A tourism push by the developmental activities that ignores these realities will damage these islands.

### • ANALYSIS

### **Physical Features**

- Located in the Arabian Sea, Lakshadweep is a group of 36 islands comprising of 12 atolls, three reefs, five submerged sand banks and 10 inhabited islands
- The maximum height of the island is 6 metres above the mean sea level.
- The soil of region is sandy.
- There is no rivers or streams, waterfalls, lakes, reservoirs, etc., in the district (entire UT of Lakshadweep is considered as single district)
- The islands are generally aligned from north to south with one exception namely, Andrott, which lies east to west.

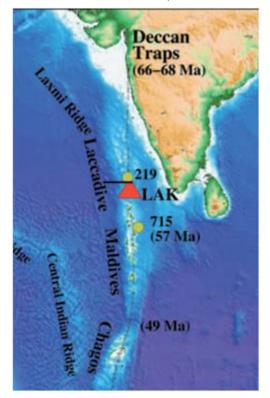
### **Formation of islands**

- The origin of the islands is attributed to the theory propounded by the English evolutionist Sir Charles Darwin in 1842. According to him, the origin of these islands can be traced to gradual submergence of some of the volcanic ridge into the Indian Ocean followed by accumulation of coralline deposits on the peaks and craters of these mountains.
- These deposits grew into coral islands resting on

submerged mountain tops over a period of time. When the volcanic islands became completely submerged, the atoll was formed encircling the lagoon where, with the action of the wind, waves, reef to currents and temperature, the coral islands were formed.

### Lakshadweep: Part of CLR Ridge

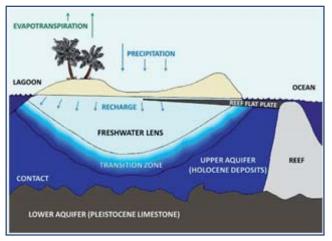
- The Lakshadweep, Maldives and Chagos archipelagos form a contiguous mountain ridge in the ocean. TheChagos-Laccadive Ridge(CLR), also known asChagos-Laccadive is a prominentvolcanicridge extending between the Northern and the CentralIndian Ocean.
- This ridge is believed to be a continuation of the Aravalli Mountain range of Rajasthan and Gujarat since the late tertiary times
- The Aravallis formed a great mountain chain in the Precambrian period extending from the Himalayas in the north to Lakshadweep in the South.





### Hydrogeology of Lakshadweep

- Ground water occurs under phreatic conditions in these islands occurring as a thin lens floating over the seawater (due to difference in densities) and is tapped by open wells
- The water level fluctuation in these islands is significantly controlled by tides when compared to the groundwater recharge and draft
- The maintenance of a minimum thickness of lens is a critical factor for the upkeep of island groundwater system. The fresh groundwater extraction from island lenses has to be limited to the sustainable yield.
- Cases of increased extraction from these fragile lenses and resultant salinizationwere reported from many islands where pumping activity has been on the increase, especially, during the last three decades



# Naturally formedstructures leading to Wetlands

### Coral reefs

- Corals are the most dominating that amounts to 69 % of wetland area in Lakshadweep
- Coral reefs are of three types namely; fringing reefs, barrier reef and atolls. The coral reefs of the Lakshadweep islands are mainly atolls except one platform reef of Androth.
- Each island is fringed by coral sands, and is marked by huge, shallow, calm lagoon on the western side that separates it from incoming swells of the outer sea by the wall of a reef made up of massive coral boulders and live corals.

Lagoons

 In Lakshadweep the lagoons are very different from the mainland in the sense that they are actually coral reef lagoons wherein the water body gets enclosed in an atoll or within a barrier reef. The depth of the lagoon is appreciable and available literature indicates that the floor of these lagoons mainly contain the coral debris and calcareous sand

• Sand Beach

In Lakshadweep these sandy beaches are characteristically located on windward side. On the other sides the sandy beaches experience the vagaries of monsoon. These beaches comprise vegetation mainly sweet potato, bayhops, crabgrass and whistling pine tree

### Edaphic condition in the islands

- The soils are geologically very young and rich in calcium carbonates of aquatic origin and poor in silica and sesquioxides. The coral atolls are very rich in phosphate deposit of low grade (13.4 per cent P<sub>2</sub>O<sub>5</sub>). The phosphate reserve is estimated as 0.12 million tonnes and it is also reported that a large deposit of calcium carbonate exists in the surrounding lagoons
- Soil depth is limited by the presence of a hard pan or shallow ground water

### Agriculture of Lakshadweep

- The islands occupy an area of 3,000 ha. Agriculture is confined only to specific areas around habitations. The soils are medium to deep, alkaline in reaction and low in soil fertility. The land use is dominated by plantation crops like coconut and arecanut. The important crops grown are rice and pulses under rainfed conditions. Suggested interventions for natural resource management for agriculture in the state are as follows:
  - Diversification of rice-rice with rice-pulse requiring less water
  - Amelioration of alkaline soils

### • CONCLUSION

Lakshadweep has an extremely fragile ecosystem and developmental activities there have severe limitations. Besides, the islands have unique traditions and culture, and reforms that could have a bearing on those should not be enforced unilaterally. The government must rethink the proposed reforms and make islanders stakeholders in any future developmental activities.

### **ISRAEL-HAMAS CLASH:**

### WHAT IT MEANS FOR WEST ASIA?

### CONTEXT

The violent clash between Israel and Hamas during May 10-21, 2021 has brought back the prolonged Israeli-Palestinian conflict to the forefront of complex issues afflicting West Asia.

### • BACKGROUND

- The multiplicity of conflicts, tensions and rivalries in the region since 2011 had relegated the Israeli-Palestinian conflict to the bottom of regional issues.
- The significance of the conflict had further diminished under the four years of Donald Trump's presidency, with his administration focused on isolating Iran through the "maximum pressure" campaign.
- The signing of the Abraham Accords between Israel and four Arab countries, namely the United Arab Emirates, Bahrain, Morocco and Sudan, in August 2020, did raise hopes for progress towards peace.
- However, the renewed escalation between Israel and Hamas diminishes any hopes for a peaceful resolution of the conflict in the immediate future.
- The beginning of the escalation can be traced to the protests in mid-April by 13 Palestinian families in Sheikh Jarrah, a locality in East Jerusalem, facing eviction from their homes after losing a court battle against Jewish settlers.
- It provoked counter-protests by extremist Jewish groups, sparking violence and rioting that soon spread to the Haram al-Sharif/Temple Mount area leading to clashes in the Al-Aqsa compound on May 7.
- In trying to control the situation, the Israeli police and IDF personnel entered the compound managed by the Waqf Council under Jordanian tutelage, leading to hundreds of Palestinians and scores of IDF personnel getting injured.
- Hamas saw this as an opportunity to reiterate its position as the leading Palestinian resistance movement (underscoring its undying spirit to fight for the Palestinian rights and against the Israeli occupation) and issued an ultimatum to Israel to withdraw its security personnel from Al-Aqsa by 6:30 pm on May 10.
- As the deadline expired, Hamas launched a barrage of rockets indiscriminately targeting civilian establishments and residential buildings in southern Israel and at targets in Jerusalem and Tel Aviv.
- The IDF retaliated by launching a full-fledged military campaign, codenamed Operation Guardian of the Wall, on May 11.

- The escalation was accompanied by protests and rioting in the occupied West Bank and East Jerusalem as well as in the mixed Arab-Jewish towns in Israel, highlighting the growing sympathy for Hamas among the wider Palestinian community.
- After mounting international pressure, the ceasefire agreement was announced on May 21, 2021.



### • ANALYSIS

There are six important lessons that the violence brings to the fore.

- Firstly, the Israeli-Palestinian conflict is not dead. The multiplicity of conflicts, tensions and rivalries in the region since 2011 had relegated the Israeli-Palestinian conflict to the bottom of regional issues. This had many believing that the prolonged conflict is no longer a serious issue. Such assumptions have been proved wrong by the current spate of violence.
- Secondly, the hopes for the revival of the peace process, that had been raised in the wake of the signing of the Abraham Accords, have diminished.
- Thirdly, the clashes have underlined the preeminence of Hamas as the Palestinian faction that can no longer be ignored by the international community, if they ever hope for the eventual



resolution of the conflict and the realization of the two-state solution.

- Fourthly, the violence reemphasized the centrality of the city of Jerusalem. The city holds political and religious significance for both parties; it is the third holiest site in Islam and the holiest in Judaism, housing the sanctum sanctorum of the Second Temple destroyed in 70 AD. Further, for Israel, the undivided Jerusalem is the capital of the State of Israel and for the Palestinians, East Jerusalem is the capital of the future State of Palestine.
- Fifthly, as far as regional geopolitics is concerned, Iran has emerged as a major regional threat. Though Hamas and Islamic Jihad have developed serious military capacity and have been producing much of their arsenal and ammunition in the underground network they have built inside the Gaza Strip, Iran is the most important supporter of the militant Palestinian factions in the region. Iran's growing military arsenal, its quest for nuclear weapons and arming of militias in Lebanon, Syria,

Iraq and Yemen, seen together with the military and financial support for Hamas, add to the angst of its regional rivals.

Finally, the latest round of Israel-Hamas's confrontation has underlined that President Joe Biden, cannot afford to ignore the Middle East. Notably, it was the tough talk by the Biden administration that eventually led to Israel and Hamas agreeing for a ceasefire, underlining the preeminence of the US as the regional arbiter.

### ONCLUSION

Although the fighting between Israel and Hamas has come to an end for now, but one can never be sure of what might happen next and for how long the ceasefire will hold. Unarguably, this was not be the last round of violence between Israel and Hamas.

The international community cannot ignore the Israeli-Palestinian conflict and there is a need to work towards reviving the peace process.

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## POOR STATE OF MIGRANT WORKERS DURING LOCKDOWN

### CONTEXT

The Supreme Court recently remarked the process of registration of migrant workers is "very slow" and it must be expedited so that benefit of various schemes can be extended to them amid the Covid-19 pandemic. The apex court also observed it is "not happy" with the efforts of the Centre as well as the states on the issue of registration of unorganised workers.

### • BACKGROUD

- The apex court was hearing an application filed by three activists who have sought directions to the Centre and states to ensure food security, cash transfers, transport facilities and other welfare measures for migrant workers who are facing distress due to the curbs clamped in several parts of the country amid the pandemic.
- The top court said it had last year passed directions regarding the registration of migrant workers. The bench said for extending the benefits of schemes, the authorities must complete the process of registration of these migrant workers in unorganized sector

### • ANALYSIS

### What is a migrant worker?

- A person who migrates or who has migrated from one country to another with a view to being employed other than on his own account.
- Migrant workers are also known to be much more likely to end up in what are often known as the '3D' (dirty, dangerous and demeaning) jobs, such as construction, mining or manual scavenging.

### What is the pattern of migration?

- As per the 2011 census, there were 21 crore ruralrural migrants which formed 54% of classifiable internal migration
- Rural-urban and urban-urban movement accounted for around 8 crore migrants each. There were around 3 crore urban-rural migrants
- In 2011, intra-state movement accounted for almost 88% of all internal migration (39.6 crore persons)

# What are the challenges faced by migrant workers especially in unorganized sector?

 Poor implementation of protections under the Inter-State Migrant Workmen Act, 1979 (ISMW Act)

- The ISMW Act provides certain protections for inter-state migrant workers. Labour contractors recruiting migrants are required to: (i) be licensed, (ii) register migrant workers with the government authorities, and (iii) arrange for the worker to be issued a passbook recording their identity. Guidelines regarding wages and protections (including accommodation, free medical facilities, protective clothing) to be provided by the contractor are also outlined in the law.
- ➤ In December 2011, a report by the Standing Committee on Labour observed that registration of workers under the ISMW Act was low and implementation of protections outlined in the Act was poor. The report concluded that the Central government had not made any concrete and fruitful efforts to ensure that contractors and employers mandatorily register the workers employed with them enabling access to benefits under the Act.

### • Lack of portability of benefits

Migrants registered to claim access to benefits at one location lose access upon migration to a different location. This is especially true of access to entitlements under the PDS. Ration card required to access benefits under the PDS is issued by state governments and is not portable across states. This system excludes inter-state migrants from the PDS unless they surrender their card from the home state and get a new one from the host state.

# • Lack of affordable housing and basic amenities in urban areas

➤ The proportion of migrants in urban population is 47%. In 2015, the Ministry of Housing and Urban Affairs identified migrants in urban areas as the largest population needing housing in cities. There is inadequate supply of low-income ownership and rental housing options. This leads to the spread of informal settlements and slums.



### • Political Exclusion

In a state of continuous drift, migrant workers are deprived of many opportunities to exercise their political rights. Because migrants are not entitled to vote outside of their place of origin, some are simply unable to cast their votes. A 2011 study on the political inclusion of seasonal migrant workers by Amrita Sharma and her co-authors found that 22 percent of seasonal migrant workers in India did not possess voter IDs or have their names in the voter list.

### Health and Living Conditions

- The migrant labourers working in unorganized sectors work and live in unhygienic and polluted environment are vulnerable to health problems and sickness
- Child Labour
- Children who migrate along with their families are deprived of the free and subsidised educational facilities offered by the state resulting in Child Labour.

### What are the steps taken by the government?

- The Prime Minister Awaas Yojana (PMAY) is a central government scheme to help the economically weaker section and low-income group access housing.
- Pradhan Mantri Garib Kalyan Yojana with a financial package of Rs. 1.7 lakh crore was launched to help

poor, needy and unorganised sector workers of the country. Under this package, 80.00 crore people have been provided 5 Kg. Wheat/Rice and 1 Kg. pulses.

- Government of India has launched PM SVANidhi Scheme to facilitate collateral free working capital loan upto Rs.10,000/- of one-year tenure, to approximately, 50 lakh street vendors, to resume their businesses
- One Nation One Ration Card System is an important citizen centric reform. Its implementation ensures availability of ration to beneficiaries under National Food Security Act (NFSA) and other welfare schemes, especially the migrant workers and their families, at any Fair Price Shop (FPS) across the country.

### ONCLUSION

The challenges faced by the migrant labourers are more complex. An analysis of the migrating pattern makes it clear that though the migrant labourers contribute more to India's economy, they are not in a protective and prosperous zone. For any meaningful transformation to happen in the lives of people employed as casual workers, the Government in collaboration with civil society needs to design a variety of interventions ranging from awareness building around the available schemes and services that such a community is entitled to and strengthening community voices for demanding their rights and capacity building.

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## GDP IS NO LONGER AN ACCURATE MEASURE OF GROWTH

### CONTEXT

The World Economic Forum with its report, Dashboard for a New Economy Towards a New Compass for the Post-COVID Recovery, which outlines a framework for macroeconomic metrics that could fill the gaps currently left by GDP has attempted to provide a metric that looks beyond a nation's income and considers welfare, the environment and people.

### • BACKGROUND

- Economic growth has raised living standards around the world. However, modern economies have lost sight of the fact that the standard metric of economic growth, gross domestic product (GDP), merely measures the size of a nation's economy and doesn't reflect a nation's welfare.
- GDP's blanket use for gauging a nation's welfare has been questioned on many occasions, even by its inventor, the US economist Simon Kuznets.

### • ANALYSIS

### What is GDP?

- Gross domestic product (GDP) by definition, is the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period.
- As a broad measure of overall domestic production, it functions as a comprehensive scorecard of a given country's economic health.
- GDP can be calculated in three ways, using expenditures, production, or incomes. It can be adjusted for inflation and population to provide deeper insights.

### How GDP falls short?

- GDP by definition is an aggregate measure that includes the value of goods and services produced in an economy over a certain period of time. There is no scope for the positive or negative effects created in the process of production and development.
- For example, GDP takes a positive count of the cars we produce but does not account for the emissions they generate; it adds the value of the sugar-laced beverages we sell but fails to subtract the health problems they cause; it includes the value of building new cities but does not discount for the vital forests they replace.
- Environmental degradation is a significant externality that the measure of GDP has failed to reflect. The production of more goods adds to an

economy's GDP irrespective of the environmental damage suffered because of it. So, according to GDP, a country like India is considered to be on the growth path, even though Delhi's winters are increasingly filled with smog and Bengaluru's lakes are more prone to fires.

- GDP also fails to capture the distribution of income across society – something that is becoming more pertinent in today's world with rising inequality levels in the developed and developing world alike. It cannot differentiate between an unequal and an egalitarian society if they have similar economic sizes.
- Another aspect of modern economies that makes GDP anachronistic is its disproportionate focus on what is produced. Today's societies are increasingly driven by the growing service economy – from the grocery shopping on Amazon to the cabs booked on Ola. As the quality of experience is superseding relentless production, the notion of GDP is quickly falling out of place.
- We live in a world where social media delivers troves of information and entertainment at no price at all, the value for which cannot be encapsulated by simplistic figures. Our measure of economic growth and development also needs to adapt to these changes in order to give a more accurate picture of the modern economy.
- Modern economies need a better measure of welfare that takes these externalities into account to obtain a truer reflection of development. Broadening the scope of assessment to include externalities would help in creating a policy focus on addressing them.
- Recent years have seen several extensive and rigorous efforts to identify relevant elements of well-being and tackle different dimensions of the measurement question. These include the UNDP's Human Development Index (1990-2020); the comprehensive review of well-being dimensions by Stiglitz, Sen and Fitoussi (2009); the OECD's Better Life project (2018, 2020); the Bennett Institute's Wealth Economy Project (2019); the Recoupling Dashboard (2019); and the World Economic Forum's Global Competitiveness Index (1979-2019), Inclusive Development Index (2015, 2017) and Social Mobility Index (2020).



### **Proposal of the World Economic Forum**

 In its new report, the Forum has proposed a scorecard made up of four dimensions that need to be brought into balance: prosperity, the planet, people and the role of institutions.

- The Forum's 'Prosperity' metric includes aspects such as social mobility, income inequality and financial resilience. GDP still features within the Prosperity dimension, but updated to reflect different dynamics within the world economy.
- In high-income economies, it has to track the slowing economic growth, its impact on standards of living and an increasingly unequal income distribution with a view to facilitating effective policy countermeasures. Whereas, in emerging markets, the metric needs to account for those countries' more evenly spread growth, which has contributed to ending poverty for millions to date.
- Human capital is the key determinator for the dashboard's 'People' dimension. It incorporates metrics for tracking education and re-skilling to guide government spending toward transforming workforce skill-sets and avoiding job losses as the economy's structural transformation continues to unfold.
- The final dimension is 'Institutions', with the Forum pointing to a decline in institutional quality, as evidenced by negative trends around press freedom, judicial independence and budget transparency, etc.

### Finding the right balance

o

- While each of these four dimensions already carries inherent complexity, their interconnectedness creates further difficulties, and trade-offs will need to be made to ensure adequate balance.
- Table 1: Dashboard for a new economy Dimensions Prosperity Planet People Institutions Energy mix and GDP (updated) Human capital: Institutional context intensity, GHG education and skills emissions Distributional Human capital: Income and wealth inequality. public health issues: impact social mobility and mitigation Social resilience Financial resilience Natural resilience

# Dashboard for a new economy (as proposed by the WEF)

 This metric weaves together the evolving energy mix and, by association, the development of greenhouse gas emissions. It also accounts for the cost of climate change and its mitigation – for example through carbon taxes.

\*\*\*\*\*\*

While governments may introduce a carbon tax

to help abate climate change, they need to consider the impact this may have on jobs, economic and social polarization, for example.

### ONCLUSION

Finding a new globally acceptable tool to measure the ups and downs of our economic activity will remain a challenge – but one that must be tackled urgently to ensure the world's economic recovery is on the right course.

As a step in this direction, India is also beginning to focus on the ease of living of its citizens. Ease of

living is the next step in the development strategy for India, following the push towards ease of doing business that the country has achieved over the last few years. The Ministry of Housing and Urban Affairs has developed the Ease of Living Index to measure quality of life of its citizens across Indian cities, as well as economic ability and sustainability.

### **ETHICS OF DIGITAL MEDIA**

### CONTEXT

The major social media platforms failed to comply with the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 within the deadline required by the government.

### • BACKGROUND

- In April 2018, the Ministry of Information and Broadcasting passed an Order forming a 10 member committee to "frame and suggest a regulatory framework for online media/news portals including digital broadcasting and entertainment/ infotainment sites & news/ media aggregators"
- The committee was subsequently disbanded in July, 2018 and the task was handed over to a panel overseen by MEITY. Creating a distinction between two separate categories of content
- Subsequently on 09.11.2020, the President of India issued a notification under Article 77(3) of the Constitution, amending the Government of India (Allocation of Business) Rules, 1961 which granted MIB the power to regulate online news platforms and OTT platforms.
- The Code of Ethics and Procedure and Safeguards in Relation to Digital/ Online Media "rules" have been notified by the Central Government under Section 87 of the Information Technology Act, 2000

### • ANALYSIS

### What is media ethics?

 Media ethics is the sub-division of applied ethics dealing with the specific ethical principles and standard of media, including broadcast media, film, theatre, arts, print media and the internet. The field covers many varied and highly controversial topics, ranging from war journalism to advertising.

### **Digital Media Ethics**

- Digital media ethics deals with the distinct ethical problems, practices and norms of digital news media. Digital news media includes online journalism, blogging, digital photojournalism, citizen journalism and social media.
- It also includes questions about how professional journalism should use this new media to research and publish stories, as well as how to use text or images provided by citizens.

### Ethical issues emerging out of digital media

- Plagiarism has become an often-accepted practice and international cultural norm due at least in part to the ease and temptation of copying online sources.
- Digitally altering images or video is common in advertising and sometimes in news.
- Using anonymous sources is frequently an accepted practice in journalism.
- Omnidirectional imaging is more than science fiction.
- WikiLeaks and the transparency of public records have changed how the public understands government, the military and big business around the world.
- Artificial intelligence and computerized newswriting are commercial realities.
- Social media, Web-cams and privacy are part of citizens' daily lives.

### **Universal Code of Ethics for media**

- The media all over the world has voluntarily accepted that code of ethics should cover at least the following areas of conduct.
  - Honesty and fairness; duty to seek the views of the subject of any critical reportage in advance of publication; duty to correct factual errors; duty not to falsify pictures or to use them in a misleading fashion;
  - duty to provide an opportunity to reply to critical opinions as well as to critical factual reportage;
  - appearance as well as reality of objectivity; some codes prohibit members of the press from receiving gifts'
  - respect for privacy;
  - duty to distinguish between facts and opinion;
  - duty not to discriminate or to inflame hatred on such grounds as race, nationality, religion, or gender; some codes call on the press to refrain from mentioning the race, religion or nationality of the subject of news stories unless relevant to the story; some call for coverage which promotes tolerance;



 duty not to use dishonest means to obtain information;

- duty not to endanger people;
- general standards of decency and taste;
- duty not to prejudge the guilt of an accused and to publish the dismissal of charges against or acquittal of anyone about whom

# Programme Code to be adhered by Digital Media Houses in India

- Programme code is mentioned under Rule 6 of Cable Television Network Rules, 1994
- No programme should be carried in the cable service which:-
  - Offends against good taste or decency;
  - Contains criticism of friendly countries;
  - Contains attack on religions or communities or visuals or words contemptuous of religious groups or which promote communal attitudes;
  - Contains anything obscene, defamatory, deliberate, false and suggestive innuendos and half truths;
  - is likely to encourage or incite violence or contains anything against maintenance of law and order or which promote anti-national attitudes;
  - Contains anything amounting to contempt of court;
  - Contains aspersions against the integrity of the President and Judiciary;
  - Contains anything affecting the integrity of the Nation;

- Criticises, maligns or slanders any individual in person or certain groups, segments of social, public and moral life of the country;
- Encourages superstition or blind belief;
- Denigrates women through the depiction in any manner of the figure of a women, her form or body or any part thereof in such a way as to have the effect of being indecent, or derogatory to women, or is likely to deprave, corrupt or injure the public morality or morals;
- Denigrates children;
- Contains visuals or words which reflect a slandering, ironical and snobbish attitude in the portrayal of certain ethnic, linguistic and regional groups;
- ➤ Contravenes the provisions of the Cinematograph Act, 1952.
- ▶ is not suitable for unrestricted public exhibition.

### ONCLUSION

- A media revolution is transforming, fundamentally and irrevocably, the nature of journalism and its ethics. The means to publish is now in the hands of citizens, while the internet encourages new forms of journalism that are interactive and immediate.
- We are moving towards a mixed news media a news media citizen and professional journalism across many media platforms. This new mixed news media requires a new mixed media ethics – guidelines that apply to amateur and professional whether they blog, Tweet, broadcast or write for newspapers. Media ethics needs to be rethought and reinvented for the media of today, not of yesteryear.

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MAY

# SECTION: B (PRELIMS)

# **CURRENT AFFAIRS**

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05	<b>GEOGRAPHY ADVANCE</b> 2021 BY: PRINCE MISHRA	STARTS	10 JUNE
06	<b>GS MAINS TEST SERIES</b> 2021 (SECTIONAL + MOCK)	STARTS	11 JUNE
07	<b>PUBLIC ADMINISTRATION</b> TEST SERIES 2021 BY: ASHUTOSH PANDEY	STARTS	12 JUNE
80	POLITICAL SCIENCE TEST SERIES 2021 BY: Dr. PIYUSH CHAUBEY	STARTS	13 JUNE
<ul> <li>IB, 2<sup>nd</sup> Floor, Pusa Road Karol Bagh, New Delhi-110005, (Adjacent to Karol Bagh Metro Gate No. 8)</li> <li>info@iasscore.in (f)/gsscoreofficial</li> </ul>			

### **TROPICAL CYCLONES LIST**

$\odot$ CONTEXT:	•	The recent cyclones in Arabian Sea and Bay of Bengal were named as Tauktae
		and Yaas.

• These Cylones are listed in India Meteorological Department (IMD) of future tropical cyclones that would emerge in the Bay of Bengal and the Arabian Sea.

### • ABOUT: Cyclone List

- The list of 169 cyclone names is released by IMD, which provides the names of the cyclones and have 13 suggestions from each of the 13 countries.
- Cyclones are named by the regional specialised meteorological centres (RSMCs) and Tropical Cyclone Warning Centres (TCWCs) in every ocean basin across the world.
- There are six RSMCs in the world that also includes the India Meteorological Department (IMD), and a total of five TCWCs.
- As an RSMC, the IMD names the cyclones which develop over the north Indian Ocean, including the Bay of Bengal and Arabian Sea, after following a standard procedure.
- The IMD is also mandated to issue advisories to 12 other countries in the region on the development of cyclones and storms.

### How the cyclones are named?

- In 2000, a group of nations which is called WMO/ESCAP (World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific), decided to start naming cyclones.
- The group is comprised of Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand, region.
- The WMO/ESCAP expanded to include five more countries in 2018 Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.
- Each country sent in suggestions and they were finalized to prepare a list by the WMO/ ESCAP Panel on Tropical Cyclones (PTC).
- The list of 169 cyclone names is released by IMD, which provides the names of the cyclones and have 13 suggestions from each of the 13 countries.
- **Significance of naming:** It helps the scientific community, the media and disaster managers to create awareness of the development, for rapidly disseminating warnings to increased community preparedness and remove confusion where there are multiple cyclonic systems over a region.

### What are the guidelines to adopt names of cyclones?

Some of the rules that countries need to follow:

- The proposed name should be neutral to (a) politics and political figures (b) religious believes, (c) cultures and (d) gender
- Name should be chosen in such a way that it does not hurt the sentiments of any group of population over the globe
- It should not be very rude and cruel in nature
- It should be short, easy to pronounce and should not be offensive to any member
- The maximum length of the name will be eight letters
- The proposed name should be provided with its pronunciation and voice over
- The names of tropical cyclones over the north Indian Ocean will not be repeated. Once used, it will cease to be used again. Thus, the name should be new.



### Names of cyclones suggested by India

- The 13 names in the recent list that have been suggested by India include: Gati, Tej, Murasu, Aag, Vyom, Jhar (pronounced Jhor), Probaho, Neer, Prabhanjan, Ghurni, Ambud, Jaladhi and Vega.
- Some of the names picked by India were suggested by the general public.
- An IMD committee is formed to finalise the names before sending it to the PTC.

### **VOLCANIC ERUPTION OF MOUNT NYIRAGONGO**

### CONTEXT: As the Volcanic eruption of Mount Nyiragongo approached towards the eastern Democratic Republic of Congo's main city of Goma and it has thousands to flee the city.

### • **ABOUT:** Mount Nyiragongo and the volcanic eruption

- Mount Nyiragongo is an active stratovolcano in the Virunga Mountains which is associated with the Albertine Rift.
- It is located inside the Virunga National Park, in the Democratic Republic of the Congo.
- The main crater is about two kilometres wide and contains a lava lake.
- Nyiragongo and nearby Nyamuragira both are responsible for 40% of Africa's volcanic eruptions.
- It is one of the world's most active volcanoes and is considered among the most dangerous volcanoes.
- Nyiragongo's was erupted last in 2002 which killed 250 people and left 120,000 homeless.
- What is Lava Lake?
- Lava lakes are large volumes of molten lava that are usually basaltic.
- Lava is contained in a volcanic vent, crater, or broad depression.
- It describes both lava lakes that are wholly or partly molten and those that are solidified.
- Lava lakes can form in three ways
  - from one or more vents in a crater which erupts enough lava to partially fill the crater
  - when lava pours into a crater or broad depression and partially fills the crater
  - atop a new vent that erupts lava continuously for a period of several weeks or more and slowly builds a crater progressively higher than the surrounding ground
- Some notable examples
- Mount Erebus, Ross Island, Antarctica
- Kīlauea, Big Island, Hawaii
- Mount Nyiragongo, Democratic Republic of the Congo



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## RECLINING BUDDHA AND HIS VARIOUS DEPICTIONS IN ART

- CONTEXT:
   India's largest statue of the Reclining Buddha was to have been installed at the Buddha International Welfare Mission temple in Bodh Gaya, On Buddha Jayanti, Buddha Purnima, or Vesak,.
  - It is a giant 100-foot fibreglass statue built over three months by artisans in Kolkata.

### The Reclining Buddha

- A reclining Buddha statue or image represents The Buddha during his last illness, about to enter Parinirvana, the stage of great salvation after death.
- The Buddha's death came when he was 80 years old, in a state of meditation, in Kushinagar in eastern Uttar Pradesh.

#### About Buddha Purnima

- It is celebrated to mark the birth of Gautam Buddha, the founder of Buddhism.
- It is considered a 'triple-blessed day' as Tathagata Gautam Buddha's birth, enlightenment, and Maha Parnirvana.
- It is believed that all the above three events occurred on this day.



• Buddha Purnima falls on a full moon night, usually between April and May, and it is a gazetted holiday in India.

- Buddha Purnima celebration is all about praying with the purest of feelings, and adopting what Buddhism stands for peace, non-violence and harmony.
- In 2000, the United Nations (UN) resolved to internationally observe the day of Vesaka at its headquarters and offices.
- It also signifies the Buddha's last deeksha even while on his deathbed, he took a follower into the fold.
- As the devotional aspect subsequently entered Buddhist practice, however, iconographic representations of The Buddha began.
- Statues and images of the Reclining Buddha show him lying on his right side, his head resting on a cushion or on his right elbow.
- It is a popular iconographic depiction in Buddhism, and is meant to show that all beings have the potential to be awakened and be released from the cycle of death and rebirth.

### How Reclining Buddha came into existence?

- The Reclining Buddha was first depicted in Gandhara art.
- It began in the period between 50 BC and 75 AD, and peaked during the Kushana period from the first to the fifth centuries AD, Dr Manwatkar said.
- Buddha was against idol worship, in the centuries immediately following his parinirvana (483 BC), his representation was through symbols.

### **Reclining Buddha in India**

- Cave No. 26 of the UNESCO World Heritage Site of Ajanta contains a 24-foot-long and nine-foot-tall sculpture of the Reclining Buddha.
  - It is believed to have been carved in the 5th century AD.
  - It shows the Buddha reclining on his right side, and behind him are two sala trees.
  - At the base of the sculpture are his begging bowl, a water pitcher and walking stick.
  - While his disciples are shown sitting in mourning, celestial beings are shown on top, rejoicing in anticipation of the Buddha's arrival in heaven.
- **Kushinagar**, where the Buddha actually attained parinirvana, has a 6-metre-long red sandstone monolith statue of the Reclining Buddha inside the Parinirvana Stupa.

### **Reclining Buddha in other parts of the World**

- Reclining postures are more prevalent in Thailand and other parts of South East Asia.
  - The largest Reclining Buddha in the world is the 600-foot Winsein Tawya Buddha built in 1992 in Mawlamyine, Myanmar.
  - In the late 15th century, a 70-metre statue of the Reclining Buddha was built at the Hindu temple site of Baphuon in Cambodia's Angkor.
  - The Bhamala Buddha Parinirvana in Pakistan's Khyber Pakhtunkhwa province, which dates back to the 2nd century AD, is considered the oldest statue of its kind in the world.
  - There are several statues of the Reclining Buddha in China, Thailand, Japan, Indonesia, and Malaysia.



### Other depictions of the Buddha

- Sitting postures, the most common depiction, mostly pertaining to his Enlightenment rather than to his demise.
  - ► At the Mahabodhi temple, the Buddha is sitting in the bhoomi-sparsha mudra, where his hand is pointing towards the ground.
    - It symbolises earth as being witness to his enlightenment.
  - At Sarnath, where the Buddha gave his first sermon, the stone statue has a hand gesture called the dharma-chakra mudra, which signifies preaching.
    - This is also the most popular depiction in India, along with the Bodhi tree depiction.
- **The Walking Buddha**, it is either beginning his journey toward enlightenment or returning after giving a sermon.
  - This is the least common of the Buddha postures, and is seen mostly in Thailand.

## SIX INDIAN PLACES ADDED TO TENTATIVE LIST OF UNESCO WORLD HERITAGE SITES

# Six Indian sites, the Satpura Tiger Reserve, Iconic riverfront of the historic city of Varanasi, Megalithic site of Hire Benkal, Maratha Military Architecture in Maharashtra, Bhedaghat-Lametaghat in Narmada Valley- Jabalpur, and temples of Kanchipuram, have been added to the tentative list.

### • ABOUT: Newly added sites

• The submissions were made by Archaeological Survey of India, which is responsible for the conservation and preservation of Indian monuments.

The Satpura Tiger Reserve	<ul> <li>It is located in Madhya Pradesh.</li> <li>The Satpura National Park is home to 26 species of the Himalayan region including reptiles, and 42 species of Nilgiri areas.</li> <li>It is the largest tiger-occupied forest and also has the largest tiger population.</li> <li>The place has more than 50 rock shelters with paintings that are 1500 to 10,000 years old.</li> </ul>
Ghats of Varanasi	<ul> <li>The Ganges riverfront of Varanasi, Uttar Pradesh.</li> <li>Varanasi's riverfront falls "into the second category of cultural properties, i.e: groups of buildings, groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape are of outstanding universal value from the point of view of history, art or science.</li> </ul>
Megalithic site of Hire Benkal	<ul> <li>It is the 2,800-years-old megalithic site of Hire Benkal.</li> <li>This Neolithic site is situated in Karnataka.</li> <li>The granite structures which are burial monuments are characteristics of this site.</li> </ul>



Maratha Military Architecture in Maharashtra	<ul> <li>There are 12 forts in Maharashtra dating back to the era of the 17th-century Maratha king Chhatrapati Shivaji.</li> <li>They are namely Shivneri (the birthplace of Shivaji); Raigad (the capital fort rebuilt for the coronation of the Maratha king), Torna (the first fort of the Maratha empire), Rajgad, Salher-Mulher, Panhala, Pratapgad, Lohagad, Sindhudurg, Padmadurga (Kasa), Vijaydurg and Kolaba.</li> </ul>
Bhedaghat- Lametaghat in Narmada Valley- Jabalpur	<ul> <li>It is an iconic site from Jabalpur, Madhya Pradesh.</li> <li>Bhedaghat is often referred to as the Grand Canyon of India.</li> <li>It is known for its marble rocks and their various morphological forms on either side of the Narmada river.</li> <li>The magical marble mountains assume different colours and even shapes of animals.</li> <li>Several dinosaur fossils have been found in the Narmada valley, particularly in Bhedaghat-Lametghat area of Jabalpur.</li> <li>In 1828, the first Dinosaur fossil was collected from Lameta Bed by William Sleeman.</li> </ul>
Temples of Kanchipuram	<ul> <li>The temple town of Kanchipuram in Tamil Nadu, is dotted with ancient temples.</li> <li>It is situated on the banks of River Vegavathi.</li> <li>This historical city once had 1,000 temples, of which only 126 (108 Shaiva and 18 Vaishnava) now remain.</li> <li>Its rich legacy has been the endowment of the Pallava dynasty, which made the region its capital between the 6th and 7th centuries and lavished upon its architectural gems that are a fine example of Dravidian styles.</li> </ul>

### About the Tentative list of UNESCO's world heritage sites

- There is a list of tentative sites for recognition which has been submitted to the UNESCO Committee for evaluation and acceptance.
  - India already has 38 sites inscribed on the World Heritage List.
- As per Operational Guidelines, 2019, it is mandatory to put any monument/site on the Tentative List (TL) before it is considered for the final nomination dossier.
- As per rules, any country can submit the nomination dossier after one year of it being on the TL.
- With the addition of these six sites, UNESCO has 48 proposals in the tentative list of India.

# HONEY TESTING LABORATORY PROJECT BY AGRICULTURE MINISTRY

### • CONTEXT:

On the occasion of World Bee Day and in the auspicious context of the 'Azadi ka Amrit Mahotsav', Union Agriculture & Farmers Welfare Ministry launched the project of setting up of a honey testing laboratory at the Indian Agricultural Research Institute, Pusa, New Delhi.



### ABOUT: Honey Testing Laboratory Project

- The project aims to establish a regional honey quality testing laboratory at the Indian Agricultural Research Institute (IARI) for quality testing of honey and other products of beekeeping.
- It has been initiated under the National Beekeeping and Honey Mission.

### World Bee Day

• United Nations designated 20 May as World Bee Day.

- Objective: It objective was to raise awareness of the importance of pollinators, the threats they face and their contribution to sustainable development.
- Goal: The goal is to strengthen measures aimed at protecting bees and other pollinators, which would significantly contribute to solving problems related to the global food supply and eliminate hunger in developing countries
  - Pollination is a fundamental process for the survival of our ecosystems. Nearly 90% of the world's wild flowering plant species depend, entirely, or at least in part, on animal pollination, along with more than 75% of the world's food crops and 35% of global agricultural land.
- It will also be helpful in the development of scientific beekeeping and achieving the target of "sweet revolution".
- Recently, 10 out of 13 honey brands fail 'purity test'- The initiative would also support the quality improvement.

### **National Beekeeping and Honey Mission**

- It is a Central Sector Scheme.
- It is started for 2 years for overall promotion and development of scientific beekeeping in mission mode.
- It is started to achieve the goal of "Sweet Revolution" in the country.
- The mission was announced as part of the Aatmanirbhar Bharat scheme.
- It trust upon capacity building & trainings, specific focus on women, input support for promotion & production, setting up of Integrated Beekeeping Development Centres (IBDCs), other Infrastructures, Digitization /online registration, etc., processing, value addition, market support, etc. & R&D under 3 Mini Missions (MMs)-MM-1, MM-2 & MM-3.

#### Sweet revolution

• It focuses on the beekeeping through scientific methods and production of quality honey and other beehive products.

### **Methods of Honey Testing**

- Test under the Food Safety and Standards Authority of India (FSSAI)
- Key adulteration parameters are tests for C4/C3 sugars, foreign oligosaccharides, Specific Marker for Rice (SMR) i.e. 2-acetylfuran-3-glucopyranoside (AFGP).
  - C4 sugars are those derived from C4 plants (plants using C4 photosynthetic pathway) such as corn, sugarcane
  - C3 sugars are those derived from C3 plants (plants using C3 photosynthetic pathway) such as rice, beet root



- Trace Marker for Rice syrup (TMR)
- Nuclear Magnetic Resonance (NMR) profiling. NMR is an advanced test to check for adulteration and confirmation of origin of honey.
  - These two tests are not part of the current FSSAI standards.

### **INTEGRATION OF E-WAY BILL AND FASTAG**

ONTEXT: RFID/FASTag was integrated with the e-way bill system in January 2021 as a result the Goods and Services Tax (GST) authorities will now be able to track real-time data of commercial vehicle (CV) movement on highways by integration of the e-way bill (EWB) system with FASTag and RFID.

### • ABOUT: Working of new system

- From January 1, 2021, RFID/FASTag was integrated with the e-way bill system.
- Under this a transporter is required to have a radio-frequency identification (RFID) tag in his vehicle and details of the e-way bill are uploaded into the RFID system.
- When a vehicle passes the RFID tag reader on the highway, the details fed into the device get uploaded on the government portal.
- The information is later used by revenue authorities to validate the supplies made by a GST registered person.
- How the new system is useful?
- Tax officers can now access reports about vehicles that have passed the selected tolls without e-way bills in the past few minutes.
- They can also view details of vehicles carrying critical commodities specific to the state that have passed the selected toll.
- Further, tax authorities can view details of any suspicious vehicles and vehicles of e-way bills generated by suspicious taxpayer GST identification numbers (GSTINs) that have passed the selected toll on a near real-time basis.
- Officers can use these reports while conducting vigilance and make the vigilance activity more effective. Moreover, officers of the audit and enforcement wing can use these reports to identify fraudulent transactions like bill trading, recycling of e-way bills.

#### e-way bills

- e-way bills have been made mandatory for inter-state transportation of goods valued over Rs 50,000 from April 2018, with exemption to precious item such as gold.
- It comes under the indirect tax regime.
- The top five states which generated the maximum number of e-way are: Gujarat, Maharashtra, Haryana, Tamil Nadu and Karnataka.
- The top five sectors where maximum e-way bills are: textiles, electrical machinery, machinery and mechanical appliances, iron and steel, and automobiles.

### FASTag/RFID

• FASTag is an electronic toll collection system operated by the National Highway Authority of India.



- FASTag is an easy-to-use, reloadable tag that is affixed on vehicle's windscreen.
- It enables automatic deduction of toll charges.

- FASTag is linked to a prepaid account from which the applicable toll amounts are deducted.
- Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects.
- The Government of India (GOI) has mandated all toll plazas on the national highways to make toll payments electronic.

# TRIFED AND NITI AAYOG PARTNERSHIP FOR VAN DHAN INITIATIVE

# • **CONTEXT**: TRIFED and NITI Aayog will be partnering to implement the Van Dhan Yojana in the Tribal clusters in those districts that have been identified as aspirational districts by NITI Aayog.

### • ABOUT: Van Dhan Scheme

- The Van Dhan Yojana or Van Dhan Scheme is a component of the 'Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) & Development of Value Chain for MFP'.
- It was launched on 14th April, 2018.
- It was implemented by TRIFED as the nodal agency at the national level, the Van Dhan start ups is a well thought master plan for the socio-economic development of the tribal population of the country.
- The idea is to set-up tribal community-owned Van Dhan Vikas Kendra Clusters (VDVKCs) in predominantly forested tribal districts.

### Features about the collaborative initiative under the Van Dhan Yojana

- **TRIFED along with the NITI Aayog** team will work out the follow-up-plan for the implementation of the Van Dhan Yojana in each of the 39 Tribal Aspirational Districts.
- **States:** These include districts in the states of Andhra Pradesh, Assam, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Telangana and Tripura.
- **Features:** To this accord, a VC will be planned with the District Collectors of all districts.
  - As a part of this association, a special focus will be on these aspirational districts where tribal population constitutes more than 50%.
  - NITI Aayog will also support TRIFED in the concept of convergence for the Mission with Article 275(1), DMF, and STC component of different Ministries, and will help in professionally monitoring and promotion for effective implementation and feedback.
- **Significance:** The Van Dhan Vikas Kendra Clusters will provide the Van Dhan Vikas Kendras economies of scale, livelihood and market-linkages, as well as entrepreneurship opportunities.
  - A typical Van Dhan Vikas Kendra includes 20 tribal members.
  - 15 such Van Dhan Vikas Kendras form 1 Van Dhan Vikas Kendra cluster.



### **Aspirational Districts Programme**

- The Government of India has launched the 'Transformation of Aspirational Districts' initiative in January, 2018.
- NITI Aayog anchors the programme with support from Central Ministries and the State Governments.
- The 'Transformation of Aspirational Districts' Programme aims to expeditiously improve the socio-economic status of 117 districts from across 28 states.
- The three core principles of the programme are Convergence (of Central & State Schemes), Collaboration (among citizens and functionaries of Central & State Governments including district teams), and Competition among districts.
- The programme focusses on 5 main themes Health & Nutrition, Education, Agriculture & Water Resources, Financial Inclusion & Skill Development, and Basic Infrastructure.
- NITI Aayog in partnership with the Government of Andhra Pradesh has created a dashboard for monitoring the real-time progress of the districts.
- Districts will be ranked based on progress made ('delta ranking') on a real-time basis

### Some other Initiatives under TRIFED

- Van Dhan tribal start-ups
- Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP)
- Development of Value Chain for MFP' Scheme
- Value addition and marketing through tribal groups and clusters

### WORLD'S LARGEST ICEBERG

#### • CONTEXT:

- Antarctica has given birth to the newly calved berg, which is designated as A-76 by scientists.
- It was spotted in recent satellite images captured by the Copernicus Sentinel-1 mission.

### • ABOUT: Iceberg A-76

- A giant slab of ice bigger than the Spanish island of Majorca has sheared off from the frozen edge of Antarctica into the Weddell Sea, becoming the largest iceberg afloat in the world.
- The newly calved berg is designated as A-76 by scientists.
- It was spotted in recent satellite images captured by the Copernicus Sentinel-1 mission.
- Its surface area spans 4,320 square km (1,668 square miles) and measures 175 km (106 miles) long by 25 km (15 miles) wide.
- The enormity of A-76, which broke away from Antarctica's Ronne Ice Shelf, ranks as the largest existing iceberg on the planet, surpassing the now second-place A-23A, about 3,380 square km (1,305 square miles) in size and also floating in the Weddell Sea.
- A-76 was first detected by the British Antarctic Survey and confirmed by the Marylandbased U.S. National Ice Center using imagery from Copernicus Sentinel-1, consisting of two polar-orbiting satellites.



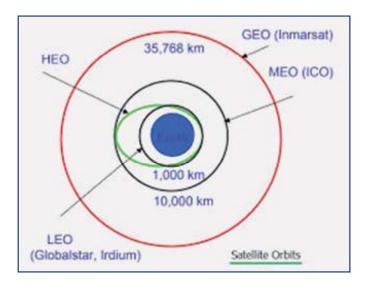
- The Ronne Ice Shelf near the base of the Antarctic Peninsula is one of the largest of several enormous floating sheets of ice that connect to the continent's landmass and extend out into surrounding seas.
- Periodic calving of large chunks of those shelves is part of a natural cycle, and the breaking off of A-76, which is likely to split into two or three pieces soon, is not linked to climate change.

### **Copernicus Sentinel-1 mission**

- Sentinel-1 is the first of the Copernicus Programme satellite constellation conducted by the European Space Agency.
- This mission is composed of a constellation of two satellites, Sentinel-1A and Sentinel-1B, which share the same orbital plane.
- They carry a C-band synthetic-aperture radar instrument which provides a collection of data in all-weather, day or night.
- Its activities include sea and land monitoring, emergency response due to environmental disasters, and economic applications.

### **NEW OCEAN OBSERVATION SATELLITE OF CHINA**

• CONTEXT:	The Haiyang-2D (HY-2D) satellite, a new ocean observation satellite of China was launched from the Jiuquan Satellite Launch Centre in northwest China.
• ABOUT:	Haiyang-2D (HY-2D) satellite
	• The HY-2D is developed by the China Academy of Space Technology, and the carrier rocket by the Shanghai Academy of Spaceflight Technology.
	• <b>Function:</b> China successfully sent the ocean-monitoring satellite into orbit as part of its effort to build an all-weather and round-the-clock dynamic ocean environment monitoring system which would provide early warning on marine disasters.
	• The satellite was launched by a Long March-4B rocket.
	It is put in low earth orbit.
	• The HY-2D will form a constellation with the HY-2B and HY-2C satellites to build an all- weather and round-the-clock dynamic ocean environment monitoring system of high frequency and medium and large scale.
	• The constellation will support the country's early warning and prediction of marine disasters, sustainable development and utilisation of ocean resources, effective response to global climate change as well as ocean research.
	Long March-4B rocket
	<ul> <li>The Long March 4B also known as the Chang Zheng 4B, CZ-4B and LM-4B is a Chinese expendable orbital Launch vehicle.</li> </ul>
	• It is a 3-stage rocket, used mostly to place satellites into low Earth orbit and sun- synchronous orbits.
	• It was first launched on 10 May 1999, with the FY-1C weather satellite, which would later be used in the 2007 Chinese anti-satellite missile test.



## THREE-DIMENSIONAL DISTRIBUTION OF MOLECULAR & ATOMIC HYDROGEN IN GALAXIES

#### • CONTEXT:

A researcher has estimated the three-dimensional distribution of molecular and atomic hydrogen in a nearby galaxy which can help lead to clues to the star formation processes and the evolution of the galaxy.

- The research was conducted at Raman Research Institute (RRI), Bengaluru, an autonomous organisation of the Department of Science and Technology (DST), Government of India.
- It was funded by the DST, Government of India.

### **Key Features of the Study**

- The estimates are based on the phenomenon of the galaxies like, the Milky Way, which consists of discs containing stars, molecular and atomic hydrogen, and helium.
- The estimation was carried out by mathematical calculations on the computer and used publicly available data.
- **Study:** Under the study a single galaxy about 20 million light-years away from the Milky Way was focused.
  - The spectral lines of carbon monoxide (CO) were studied to accurately trace molecular hydrogen, whose spectral lines are more difficult to observe.

### What are Spectral lines?

- These are narrow emission or absorption features in the spectra of gaseous and ionized sources.
- Spectral lines are powerful diagnostics of physical and chemical conditions in astronomical objects.
- Their rest frequencies identify the specific atoms and molecules involved, and their Doppler shifts measure radial velocities.
  - These velocities yield the redshifts and Hubble distances of extragalactic sources, plus rotation curves and radial mass distributions for resolved galaxies.



• Spectral lines of the CO molecule are used to infer the three-dimensional distribution of both the narrow disc component and the diffuse component of molecular hydrogen.

### What is the role of Molecular Hydrogen gas in star formation?

- The molecular hydrogen gas converts to individual stars under the pull of gravity, thus holding clues to the star formation processes and the evolution of the galaxy.
  - > The atomic hydrogen extends both above and below the discs.
  - It has also been estimated that molecular hydrogen extends farther from the disc in both directions, up to about 3000 light-years.
  - This gaseous component is warmer than the one straddling the disc and has comparatively lesser densities. This is known as the 'diffuse' component of the molecular disc.

### What are the outcomes of the study?

- The research says that the extension of gas may explain the occurrence of stars at a few thousand light-years perpendicular to the galactic disc.
  - Research found that the diffuse component makes up about 70 percent of the molecular hydrogen, and this fraction remains roughly constant along the radius of the disc.

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