

CURRENT AFFAIRS

WEEKLY

WEEK-1
JANUARY
2021

MAINS

- GS-I** ● Time for a New Concept of Development Adapted to the Anthropocene
- GS-II** ● Failure of Constitutional Machinery in a State
 - Tibet returns as fulcrum point between US and China
- GS-III** ● ISRO's DSSAM and the expectations of India's armed forces
- GS-IV** ● Religion and Morality

PRELIMS

- ART & CULTURE** ● Adopt a Heritage: Apni Dharohar, Apni Pehchaan
- GEOGRAPHY** ● Giant Iceberg A68
 - Lightning is still a big 'natural killer' in India
- GOVERNANCE** ● Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) SEHAT scheme
 - ILP system
- ECONOMY** ● Kisan Rail
 - Zero coupon bonds
- SCIENCE & TECHNOLOGY** ● India's 1st Indigenously Developed Pneumococcal Vaccine "Pneumosil"
 - Nanomicelles: using nanoparticles for cancer treatment
 - Oxford COVID vaccine authorised

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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 (JANUARY, 2021)

CONTENTS

17Section - A: MAINS CURRENT AFFAIRS			
Area of GS		Topics in News	Page No.
GS-I	GEOGRAPHY	• Time for a New Concept of Development Adapted to the Anthropocene	02
GS-II	POLITY	• Failure of Constitutional Machinery in a State	05
	INTERNATIONAL RELATIONS	• Tibet returns as fulcrum point between US and China	07
GS-III	SCIENCE & TECHNOLOGY	• ISRO's DSSAM and the expectations of India's armed forces	10
GS-IV	ETHICS	• Religion and Morality	13

Section - B: PRELIMS CURRENT AFFAIRS			
Area of GS		Topics in News	Page No.
GS-I	ART & CULTURE	• Adopt a Heritage: Apni Dharohar, Apni Pehchaan	18
	GEOGRAPHY	• Giant iceberg A68	18
		• Lightning is still a big 'natural killer' in India	19
GS-II	GOVERNANCE	• Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) SEHAT scheme	21
		• ILP system	22
GS-III	ECONOMY	• Kisan Rail	22
		• Zero coupon bonds	23
	SCIENCE & TECHNOLOGY	• India's 1st Indigenously Developed Pneumococcal Vaccine "Pneumosil"	24
		• Nanomicelles: using nanoparticles for cancer treatment	25
		• Oxford COVID vaccine authorised	26



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SECTION: A

(MAINS)

CURRENT AFFAIRS

TIME FOR A NEW CONCEPT OF DEVELOPMENT ADAPTED TO THE ANTHROPOCENE

CONTEXT

Humanity is at war with the living planet, endangering our prosperity and indeed our very survival on Earth. That is the stark message of the 30th Human Development Report, “The Next Frontier: Human Development and the Anthropocene,” released by the United Nations Development Program.

◎ BACKGROUND

- For too long, humans have pursued an economic model of development based on unsustainable production and consumption, heedless of the impact on the natural world in which we are inextricably embedded.
- The bill is now coming due. The COVID-19 pandemic, which began as a zoonotic disease, is only the latest example of the pressures we are placing on the planet.
- Since 1945, the world has achieved remarkable economic growth, bringing hundreds of millions of people out of poverty and improving the lives of billions more.
- Unfortunately, these material gains have come at grievous cost to nature, including in the form of runaway climate change, collapsing biodiversity and rampant pollution.
- Humanity has altered the composition of the
 - ▶ Atmosphere
 - ▶ chemistry of the oceans
 - ▶ contours of landscapes and seascapes
 - ▶ distribution of species, and so much more
- People are now the most powerful force shaping the entire integrated Earth system.
- Scientists now favor designating an entirely new geological era: the Anthropocene, or Age of Humans.
- This new era can be a force for good but unfortunately, it is more a force for bad than good at the moment. The human enterprise is growing fast, too, while nature keeps shrinking.
- Today, the mass of all inorganic and manmade materials, including everything made of plastic, officially outweighs all organic matter such as plants and animals.
- Humans have created 1 trillion tons of material, and this amount doubles every 20 years. These gigantic numbers mean that weekly manmade production equals the weight of the entire human population.
- The vast majority of manmade objects find their way back into nature as waste.
- This waste poses a critical threat to plant and animal life, including plastic waste in the oceans that have threatened certain fish species with extinction.
- The mass extinctions of plants and animal species and widespread pollution of the seas and the air cannot be ignored nor underestimated. Pollution, waste and extinctions have significantly altered the planet.

What are the signs of Anthropocene?

- **Global warming:** Today, climate is no longer stable and is beginning to warm rapidly. Human activities, rather than any natural process is the primary cause of the accelerated global warming.
- **Plastic pollution:** Plastic could become a key marker of the Anthropocene. The planet is now awash with plastic. Millions of tons are produced every year, which does not biodegrade and ends up littering soils and ocean beds.
- **Extinction:** Though there have been mass extinction events in Earth's history, until now they have all been triggered by natural causes like asteroids and volcanic eruptions. It is for the first time, a single species has caused such destructive effects on the natural world and had an awareness of doing so.
- **Unprecedented changes:** Agriculture, urbanization, deforestation and pollution have caused extraordinary changes on Earth.

◎ ANALYSIS

Entering a new era

- The Anthropocene is a proposed geological epoch that powerfully expresses the planetary scale of the environmental changes wrought by human activity.
- For the first time in a relationship spanning 300,000 years, instead of the planet shaping humans, humans are shaping the planet. This is the Anthropocene: the age of humans.

Human Development Index

- For the past 30 years, the UNDP has released the Human Development Index (HDI) to act as an alternative metric to gross domestic product (GDP).
- Instead of arbitrary economic figures, the Report introduces an experimental new lens to its annual **Human Development Index (HDI)**.
- By adjusting the HDI, which measures a nation's health, education and standards of living to include two more elements: a country's carbon dioxide emissions and its material footprint, the index shows how the global development landscape would change if both the well-being of people and also the planet were central to defining humanity's progress.
- With the resulting **Planetary-Pressures Adjusted HDI (PHDI)**, a new global picture emerges, painting a less-rosy but clearer assessment of human progress.

What is HDI?

- The Human Development Report is an important product by the United Nations (UN).
- The index is a statistic composite index of life expectancy, education, and per capita income indicators, which are used to rank countries into four tiers of human development.
- It examines three important criteria of economic development
 - life expectancy
 - education
 - income levels

The alarming questions

- The new report makes an urgent case for reining in the humans and their impacts on the planet. It is premised on the following questions:
- What do we do with this new age?
- Do we choose in the face of uncertain futures to embark on bold new paths that expand human freedoms while easing planetary pressures?
- (or) Do we choose to try and ultimately fail to

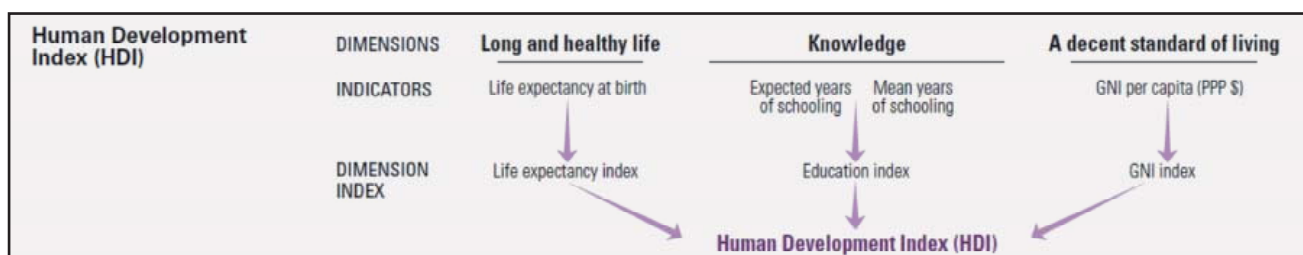
go back to business as usual and be swept away, ill equipped and rudderless, into a dangerous unknown?

Challenges

- Inequalities:** But in this Age of **Anthropocene**, everybody is not equal; the report reiterates that inequality will continue in our existence and interaction with nature.
- Discrimination based on ethnicity:** Discrimination based on ethnicity frequently leaves communities severely affected and exposed to high environmental risks such as toxic waste or excessive pollution—a trend reproduced in urban areas across continents.
- Inefficient exploitation of resources:** While developed countries have mastered the art of extracting services from nature efficiently and to a greater extent, developing or poor countries, despite living in natural resource-rich geography, have not been able to attain that level of exploitation.
- More burden on poor:** The developed countries have deeper and more devastating impacts on the planet's ecology than the poor or developing nations. Yet, to reiterate, poor and developing countries suffer the most and will continue to do so.

Key-suggestions of the Report

- The report leaves no doubt that humans have to be the point of solution for the planet's uncontrolled slip into an abyss of ecological disaster. The report argues for:
- Control on consumption:** Human consumption has been put at the centre of the solution to the greatest development challenge of climate change and also to control occurrences of pandemics like the ongoing novel coronavirus disease (COVID-19). The report advocates nature-based solutions to these challenges.
- Collaboration between humans and nature:** With impeccable data, it also sounds confident that humans and nature could again collaborate to tone down the impact of any catastrophe.



- **Forest conservation:** Reforestation and taking better care of forests could alone account for roughly a quarter of the pre-2030 actions humans must take to stop global warming from reaching 2 degrees Celsius above pre-industrial levels.
- **Dismantling imbalance of power and opportunity:** Easing planetary pressures in a way that enables all people to flourish in this new age requires dismantling the gross imbalances of power and opportunity that stand in the way of transformation.

◎ CONCLUSION

- The next frontier for human development will require working with nature, and not against it, while transforming social norms, values, and government and financial incentives. This aspect of our relationship with nature is going to define our survival and well-being in the Anthropocene. For the poor Homo sapiens, it is going to be a lonely affair.
- Making peace with nature is the defining task of the 21st century. Reconciling people and the planet must begin with a new concept of development, tailored to the Anthropocene.

FAILURE OF CONSTITUTIONAL MACHINERY IN A STATE

CONTEXT

- The recent order of the Andhra Pradesh High Court directing the Andhra Pradesh government to come prepared to argue on the 'breakdown of constitutional machinery in the state' has been found 'disturbing' by the Supreme Court.
- Though the Supreme Court has stayed the order, there is need of deeper observation into the provisions of Article 356.

◎ BACKGROUND

- The power to decide whether there is constitutional breakdown in any State that calls for imposition of President's rule rests entirely in the executive under Article 356 of the Constitution.
- The Andhra Pradesh High Court passed an interim order on 1 October, calling on the senior counsel appearing for the State to come prepared to assist the court as to whether in circumstances prevailing in the State the court can record a finding that there is constitutional breakdown in Andhra Pradesh.
- The order was passed in 14 habeas corpus petitions.

The high court order

- The Andhra Pradesh high court bench comprising Rakesh Kumar and J. Uma Devi had passed the order in a habeas corpus case on October 1.
 - The case, **Reddi Govinda Rao, S/o Reddy Akku Naidu v The State of Andhra Pradesh and others** was clubbed with 16 similar habeas corpus petitions alleging police excesses.
 - While hearing this case, the high court bench directed that **"on the next date, learned senior counsel appearing on behalf of the State may come prepared to assist the court as to whether in the circumstances, which are prevailing in the state of Andhra Pradesh, the court can record a finding that there is constitutional breakdown in the state or not"**.
 - The state government filed an interlocutory application before the bench to recall the order, which was declined.
- The Supreme Court found the High Court order, a prelude to getting the Andhra Pradesh government of YSR Jaganmohan Reddy dismissed, 'disturbing'.
 - Heading a three-judge Bench, Chief Justice of India SA Bobde stayed the AP High Court order

saying, as the apex court, **"we find this order disturbing."**

- The High Court's order violates the **Basic Structure doctrine of the Constitution** and seemed to have reversed the judgment of the nine judge apex court Bench in the **SR Bommai case** laying down the scope of Article 356.

◎ ANALYSIS

What is Article 356?

- Article 356 of the constitution – dealing with provisions in case of failure of constitutional machinery in a state – begins under sub-clause (1) as follows:
- "If the President, on receipt of report from the Governor of the State or otherwise, is satisfied that a situation has arisen in which the government of the State cannot be carried on in accordance with the provisions of this Constitution, the President may by proclamation, assume to himself.."
- The determination of the breakdown of constitutional machinery may be done by the **President** at any time, either upon receipt of a report from the Governor, or suo motu.
- If approved by both the houses, the President's Rule, as it is most-commonly called, can continue for 6 months.
- It can be extended for a maximum of 3 months with the approval of the Parliament.

Recent instances of President's Rule

- Since the formation of the Republic, President's Rule under Article 356 has been imposed in states in over 100 occasions. The recent instances are as given below:
- Jammu and Kashmir: After completion of six months of Governor's rule, President Ram Nath Kovind on December 19, 2018, imposed President's rule in the state, which had plunged into a political crisis after the Mehbooba Mufti-led coalition government collapsed.

- ▶ On June 12 this year, the Union Cabinet approved the extension of President's rule in Jammu and Kashmir for another six months, beginning from July 3.

- Arunachal Pradesh: Arunachal Pradesh came under President's Rule from December 16, 2015, to February 19, 2016, after Congress MLAs approached Governor JP Rajkhawa seeking to impeach Speaker Nabam Rebia.
- Delhi: President's Rule was also in force in Delhi with the Assembly in suspended animation from February 14, 2014, to February 11, 2015, when Arvind Kejriwal resigned as the chief minister after his move to introduce the Jan Lokpal Bill fell through in the Assembly.
- Maharashtra: Article 356 was also imposed in Maharashtra from September 28, 2014, to October 31, 2014, after chief minister Prithviraj Chavan resigned following the collapse of the 15-year-old Congress-NCP alliance in the state.
- Andhra Pradesh: The state faced the President's Rule from February 28, 2014, to June 8, 2014.
- Jharkhand: President's Rule was declared in Jharkhand from January 18, 2013, to July 12, 2013.

The lost key to the 'Key word'

- The key word here is "**otherwise**", which has been left undefined.
- In the absence of the Governor's report recommending President's rule, the President can rely on **any other material** to arrive at the conclusion that the constitutional machinery in a state has collapsed.
- While considering the **question of material**, the Supreme Court had held that it is not the personal whim, wish, view or opinion or the *ipse dixit* of the President dehors the material but a legitimate inference drawn from the material placed before him which is relevant for the purpose.
- In other words, as the apex court had held, the President has to be convinced of or has to have sufficient proof of information with regard to or has to be free from doubt or uncertainty about the state of things indicating that the situation in question has arisen.
- The apex court had qualified this by saying that although the sufficiency or otherwise of the material cannot be questioned, the legitimacy of inference drawn from the material is certainly open to judicial review.

How did this provision 'originate'?

- No liberal democratic Constitution in the world has a provision such as Article 356 that gives the central government the power to dismiss a democratically-elected State government except the Constitution of Pakistan.
- Both India and Pakistan borrowed this provision from the **Government of India Act, 1935**.
- Interestingly, the Indian leaders were so very opposed to this provision that they forced the British government to suspend it; thus, Section 93 of the Government of India Act, 1935 was never brought into effect.
- The provision which was opposed during the freedom struggle was incorporated in the Constitution strangely in the name of **democracy, federalism and stability**.
- On June 11, 1947, it was agreed in the Constituent Assembly that the Governor could use this emergency power.
- By this time the Governor was supposed to be elected by the people of the State rather than nominated by the Centre.
- Some important opposing views on the provisions are as below:
 - ▶ **Govind Ballabh Pant** did say that by mere elections, Governors will not become all wise.
 - ▶ **G.B. Pant** and **Hriday Nath Kunzru** opposed it and termed it as virtual reproduction of the 1935 Act. H.N. Kunzru defied the whip and voted against it.
 - ▶ **Laxmi Kant Maitra** and **Tanguturi Prakasam** said that Indian Governors would not behave like British Governors who acted as agents of the Centre.
 - ▶ **Alladi Krishnaswami** justified the provision in the name of representative government at the Centre.
- Subsequent decades proved all of them wrong both in respect of Governors as well as the central government.
- After several revisions, provision became Article 278 (now Article 356).

◎ CONCLUSION

In the time, when Judiciary is itself in grim situation, the observations of the Andhra Pradesh High Court are worrisome. The order is a serious encroachment on the powers of the executive as enumerated under the Constitution and is thus violative of the doctrine of separation of powers, it said, while urging the apex court to set aside the order.

TIBET RETURNS AS FULCRUM POINT BETWEEN US AND CHINA

CONTEXT

Needling China, the US Congress passed The Tibetan Policy and Support Act (TPSA) to step up US support to Tibetans.

◎ BACKGROUND

- The TSPA is an amended version of the Tibet Policy Act of 2002, which came into existence during the Bush Administration.
- Over 60 years ago, the 14th Dalai Lama was forced into exile by the Chinese Communist Party's (CCP) full-scale military takeover of Tibet.
- To this very day, the Chinese Communist Party uses propaganda, violence, and oppression to assert totalitarian control over Tibet and the Tibetan people.
- The CCP sees Tibet culture and their religious heritage as a threat to its control.
- Now, the TPSA sends a loud and clear message to China that Tibet remains a priority for the United States and that it will continue its steadfast support for His Holiness the Dalai Lama and the Central Tibetan Administration.
- It recognizes the cultural and religious significance of an autonomous Tibet and seeks peaceful solutions to the conflict.

◎ ANALYSIS

What is the Tibetan Policy and Support Act, 2020?

- The **Tibetan Policy and Support Act of 2020** is part of a massive USD 2.3 trillion package for the year-end bill to provide long-delayed coronavirus relief and fund the federal government, modifies and reauthorises various programmes and provisions related to Tibet.
- Built on the landmark **Tibetan Policy Act of 2002**, the TPSA addresses Tibetan-
 - human rights
 - environmental rights
 - religious freedoms
 - the democratic Tibetan government in exile

Major highlights of the Act

- **Religious Freedom:** China is determined to dictate how Tibetans in Tibet practise their religion. The TPSA makes it an official US policy that only the

Tibetan community has the right to appoint Tibetan Buddhist leaders.

- **Assistance to non-governmental organizations:** It authorises assistance to non-governmental organisations in support of Tibetan communities in Tibet.
- **Office of Special Coordinator:** The Act re-authorises the Office of the US Special Coordinator for Tibetan Issues and expands the office's duties to include additional tasks, such as pursuing international coalitions to ensure that the next Dalai Lama is appointed solely by the Tibetan Buddhist faith community.
- **Restriction on new Chinese consulate:** The Act directs the Secretary of State not to open a new Chinese consulate in the US unless China allows the opening of an American consulate in Lhasa.
- **Environment monitoring:** Expressing concern over the exploitation of natural resources of Tibet, in particular water, the Act seeks to pursue collaborative efforts with Chinese and international scientific institutions to monitor the environment on the Tibetan Plateau, including glacial retreat, temperature rise, and carbon levels, in order to promote a greater understanding of the effects on permafrost, river flows, grasslands and desertification, and the monsoon cycle.
- **Financial assistance:** The bill approves-
 - USD 1 million per annum for the Special US Coordinator on Tibet
 - USD 675,000 towards scholarship provisions
 - USD 575,000 for scholar exchange initiatives
 - USD 8 million for the Tibetan Autonomous Region and Communities in China
 - USD6 million for Tibetans living in India
 - USD 3 million for Tibetan governance

The Dalai Lama Factor

- The Act reaffirms the right of Tibetans to choose a successor to their spiritual leader.
- The TPSA makes it an official US policy that decisions regarding the reincarnation of the Dalai Lama are exclusively within the authority of the current Dalai Lama, Tibetan Buddhist leaders, and the Tibetan people.

- Any interference by Chinese government officials will be met with serious sanctions and deemed inadmissible into the United States.
- It expands the role of a special diplomat on Tibetan issues to pursue international coalitions to ensure that the next Dalai Lama is appointed solely by the Tibetan Buddhist community.

14th Dalai Lama

- The incumbent and the 14th Dalai Lama has been living in exile in India ever since his 1959 escape from Tibet, which had been occupied by the Chinese People's Liberation Army (PLA) in 1950-51.
- He has been leading the movement for "genuine autonomy" for Tibet and Tibetans.

Opposing views

• United States

- Noting that the 14th Dalai Lama advocates the **Middle Way Approach**, which seeks genuine autonomy for the six million Tibetans in Tibet, the Act says that the Dalai Lama has overseen a process of democratisation within the Tibetan polity and devolved his political responsibilities to the elected 23 representatives of the Tibetan people in exile in 2011.

• China

- Beijing views the 14th Dalai Lama as a "separatist" working to split Tibet from China.
- As of now, the Act says, the Central Tibetan Administration is the institution that represents and reflects, to the greatest extent, the aspirations of the Tibetan diaspora around the world, and Sikyong is the President of the Central Tibetan Administration.

What is China's take on the Bill?

- China strongly opposed the bill.
- The country claimed that issues involving Tibet, Taiwan and Hong Kong "**concern China's sovereignty and territorial integrity**," and urged the U.S. to "stop meddling in Beijing's internal affairs."

The country profile

- Tibet, the remote and mainly-Buddhist territory known as the "roof of the world", is governed as an **autonomous region of China**.
- Tibet has been occupied and ruled by China since 1951 in "a calculated and systematic strategy aimed at the destruction of their national and cultural identities."

- Beijing claims a centuries-old sovereignty over the Himalayan region.
- But the allegiances of many Tibetans lie with the exiled spiritual leader, the Dalai Lama, seen by his followers as a living god, but by China as a separatist threat.
- Tibet has internationally been recognised as one of the most unstable regions in the world, constantly featuring among the top targets of human rights violations.
- Economy:** Tibet's economy depends largely on agriculture. Forests and grasslands occupy large parts of the country. The territory is rich in minerals, but poor transport links have limited their exploitation. Tourism is an important revenue earner.
- Buddhism:** Buddhism reached Tibet in the seventh century.
 - The Dalai Lama, or Ocean of Wisdom, is the leading spiritual figure
 - The Panchen Lama is the second most important figure.
- Both are seen as the reincarnations of their predecessors.



The Indian Connection

- The 14th Dalai Lama continues to be in exile, in the upper reaches of Dharamshala town in the state of Himachal Pradesh, and Tibetans operate a **Government-in-exile** from there.
- While it allows Tibetans to live and work freely in the country, India has been careful so far to not play the 'Tibetan' card.
- However, China's acts of aggression this year in eastern Ladakh has some in India wondering whether New Delhi should adopt a more active Tibet policy.
- To that extent, India may consider a more coordinated approach with western nations, especially the US, on the critical issue of the successor to the 14th Dalai Lama.
- It may be time for New Delhi to work out a strategy in close consultation with the Tibetan government-

in-exile and by keeping the US in the loop.

Is China's India policy influenced by Tibet?

- The Tibetan Policy and Support Act (TPSA) is an important strategic development for India too.
- Tibet has always been a thorn in the side of Sino-Indian relations.
- India's harbouring of the Dalai Lama and more than 150,000 Tibetan refugees has always evoked an angry response from China.
- To a large degree, China's India policy has been shaped by its interests in Tibet.
- The Chinese do not want to accept the fact that Tibet and India have had traditional relations that neighbours have.
- The most sacred sites of Hinduism, Kailash and Mansarovar, are in Tibet and, till the 1950s, a great deal of convergence, even between China and Tibet was through the port of Kolkata (then Calcutta).

- The fact that the Dalai Lama has taken refuge in India has deepened the Chinese unease about the role of New Delhi, not just in ongoing affairs, but also on his future re-incarnation plans.
- In part this is what drives the Chinese demand that the minimum condition for a border settlement would be India conceding Tawang, with its famous monastery, built in the seventeenth century at the instance of the Great Fifth Dalai Lama.

◎ WRAPPING UP

For the first time, a country has formally recognised Tibet as 'an occupied country'. This resolution has clearly irked China. The China-US relations reached the worst phase this year with sharpening disputes between the two countries over human rights especially in Tibet, and a host of other issues. Now, the House has sent a strong message with the passage of resolutions calling for the end of China's human rights abuses. Moreover, this resolution is going to be followed by the new Biden Administration as well.

ISRO'S DSSAM AND THE EXPECTATIONS OF INDIA'S ARMED FORCES

CONTEXT

ISRO's recent launch of a Directorate of Space Situational Awareness and Management (DSSAM), aimed at monitoring, tracking and protecting India's space assets, bodes well for the Indian space programme. The control centre is envisaged to function as a hub of all SSA activities within India.

◎ BACKGROUND

- India's space programme is one of the well-developed in the world and the sector has achieved numerous successes through its state-owned agency, the Indian Space Research Organisation (ISRO).
- However, in recent years, the space domain has become increasingly crowded and contested making Space Situational Awareness (SSA) capacities critical for all major space faring countries.
 - ▶ Tracking debris in space, de-orbiting objects satellites from space and ensuring the successful return and recovery of manned and unmanned payloads from space to earth can only happen with robust SSA capabilities.
- The Directorate of Space Situational Awareness and Management (DSSAM) has been established at ISRO, recognising the need for dedicated efforts to tackle the emerging challenges of operating in an exceedingly crowded and contested space domain.
- To meet this effort, the ISRO has developed and established various facilities such as the **Network for Space Object Tracking and Analysis (NETRA)**.
- In addition, the Indian space programme leverages the inputs of foreign space agencies as well coordinates with as an extensive number of observational facilities that are part of the ISRO's ground segment such the agency's Telemetry, Tracking and Command Network (ISTRAC).
- The safety of India's manned space flight mission for instance to avoid collision with space debris is one.
- While all these SSA elements are absolutely indispensable for the ISRO's missions and those of the armed services, they are, however, insufficient as far as the latter's missions are concerned.
- An exclusive or singular focus on debris tracking, cataloguing space objects and correlation detracts from the pressing requirements the Indian armed services are likely to need.

- Given the above background, this article provides an overview of India's space sector.

◎ ANALYSIS

Why space security matters?

- Outer space is a global commons that is central to military, environmental, socioeconomic, and human security on Earth and to science, exploration, and discovery.
- Space security is an important and emerging area that India's policymakers need to approach in interdisciplinary fashion.
- The real danger posed by a possible collision of satellites would be the debris of varying sizes scattered across space in all directions, in high-speeds with high potential of harming other satellites.
 - ▶ As of January 2020, there are around 2,000 active satellites orbiting the earth. There are also more than 23,000 pieces of debris larger than 10cm (4inches) in orbit, according to NASA.
- The ability to access and use outer space is critical to the well-being of all nations and people.
- Resources in outer space support applications from global communications to financial operations; farming to weather forecasting; and environmental monitoring to navigation, surveillance, and treaty monitoring.
- It is imperative that all humankind can access and enjoy the many benefits of space today, and that this use is sustainable in the future.
- However, maintaining the safety, security, and sustainability of outer space is challenging.

What is NETRA?

- According to ISRO, NEtwork for space object TRacking and Analysis (NETRA) project is initiated as a first step towards meeting this goal.
- **Elements:** NETRA's main elements would be a radar, an optical telescope facility, and a control centre.

- ISRO's SSA Control Centre, "NETRA", is now set up within the ISTRAC campus at Peenya, Bangalore.

Space Situational Awareness (SSA)

- Space Situational Awareness (SSA) is the science of tracking objects (man-made and natural) that are in orbit and also predicting when they would be at a given point in time.
- So far, only America, Russia and Europe have similar established capabilities in place to track space objects and share collision warnings.

What do the Indian services need?

- Augmented services:** The Indian armed services need more than traditional SSA tasks. Given that satellites that orbit the earth provide a range of services that militaries require such as precision in Position, Navigation and Timing (PNT), the SSA requirements for the Indian armed services will need to be augmented.
- Tracking and identification of anti-satellite weapons:** Satellites are crucial for communications, missile warning, weather information, imagery and Intelligence, Surveillance, and Reconnaissance (ISR). In addition, an SSA architecture that places an emphasis on tracking and identifying anti-satellite weapons, communications jammers and sensors that can overpower spacecraft with light.
- Strengthened BMC3 architecture:** From a military standpoint, all the traditional SSA related tasks must extend to tactical, predictive and intelligence driven SSA that comes under an integrated Battle Management Command, Control, and Communications (BMC3) architecture.
 - If an Indian BMC3 is to be effective it will need significantly more SSA sensors that support rapid tasking, processing, exploitation and dissemination across different levels of the chain of command.
 - Tactical intelligence will need incorporation into the BMC3 in order to provide timely assessment and identification of threats that can help mitigate them.
 - BMC3 requirements involve SSA technologies that include sensors and early warning systems capable of detecting threats and enabling the execution of time sensitive missions.

Is it only ISRO's responsibility?

- The creation of capabilities that meets the SSA demands of the Indian military will not per se be the responsibility of the ISRO.

- Indeed, that task will have to be undertaken by the newly established **Defence Space Research Agency (DSRA)**.
- The latter's functional responsibility is to
 - provide technical and scientific expertise
 - develop assets for the DSA
- The **Defence Space Agency (DSA)** — a tri-service and parent organisation of the DSRA is responsible for commanding India's space assets.
- The DSA will have to establish what the three services need.
- More importantly, the DSRA headed by a senior government scientist consisting of technical experts within its ranks is still a nascent organisation as it was set-up only last year.
- It will take a while before its capacities are built up and amidst the current COVID-19 pandemic it is hard to estimate the extent of the progress made during the last year.
- It would be surprising if ISRO, although a civilian space agency has no role to play in providing some guidance to the DSRA.

Issues and challenges

- Slow pace of space policy development:** While ISRO and other organisations have exceeded expectations when it comes to the amount of work they have been able to achieve in such a short span of time, barriers exist due to the slow pace of India's space policy development in comparison to the capabilities of other major players in the space industry.
- Lack of basic infrastructure:** From infrastructure such as a test range, to a set of standards which apply to any satellite being launched in India, the country still lacks a lot of the basic infrastructure.
- Un-progressive industry ecosystem:** Most players from the industry want the space sector to be opened up like the telecommunications sector and let private players in, as the current ecosystem greatly stifles the growth of the space industry as a whole and dissuades many start-ups and small enterprises from being a part of the satellite industry.

Suggestive measures

- Investment:** India's principal rival, China has a range of counterspace capabilities that can disable India's space-based assets dedicated to navigation, communications and intelligence collection. Consequently, the Indian armed services eyes and ears in space and the ground segment of India's military space programme will suffer if there is no significant investment in SSA that is responsive to the operational requirements of the three services.

- **Integration of structure:** Further, the Indian military's Command and Control (C2) structure will need tight integration.
 - ▶ In addition, the DSA in concert with other space related entities, which have now presumably merged with the DSA such as the Defence Imagery Processing and Analysis Centre (DIPAC) in New Delhi and the Defence Satellite Control Centre (DSCC) in Bhopal will need to be tightly integrated into the communications network of the armed services.
- **Comprehensive analysis:** The DSA should dedicate itself to conducting a comprehensive analysis of all the technological needs, ISR requirements,

procedural changes and operational concepts.

- **Augmentation and re-organization:** India needs to augment and reorganise its space organisational structure in order for the armed forces to take fuller advantage of the country's space assets.

◎ CONCLUSION

While space is a global commons, there are states across the world seeking control and aiming to deny other countries use of space. Space plays an important role in meeting national security needs; however, a balance has to be found between meeting national security challenges and societal needs.

RELIGION AND MORALITY

CONTEXT

- India historically touts itself as a secular state, one where all religions are recognized and can peacefully co-exist. Unfortunately, the reality is much different. Recent issues such as exodus of Kashmiri Hindus, cow slaughtering, love jihad paints a gloomy picture of India.
- This article examines moral panics about religious violence (love jihad) and other issues in contemporary India.

◎ BACKGROUND

- In the knowledge tradition of India, ethics has its origin in its religious and philosophical thinking. From time immemorial, various religious faiths have flourished here.
- Every religious and every philosophical system of India has a prominent ethical component.
- Ethics is the core of all these systems. In every religious tradition, good moral conduct is considered essential for a happy and contented life.
- Without following the path of righteousness no one can attain supreme goal (moksha) of life. For this one has to perform good deeds and avoid wrong-doing.
- However, today the situation has changed completely. Today, the Indian society is dominated by religious conflicts of serious nature.
- A huge and diverse land of 135 million people, 29 states and 22 scheduled languages, yet the country is caught in a single obsession-‘religion’.

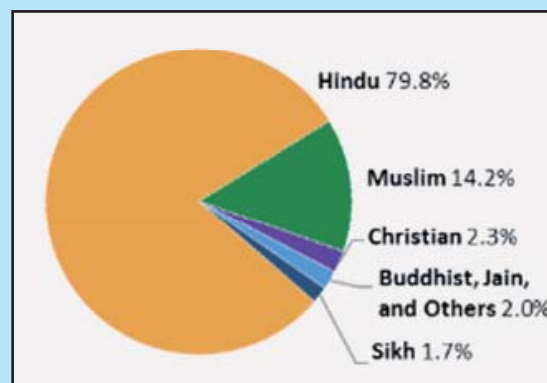
◎ ANALYSIS

What is religious freedom?

- Religious freedom is the right of people to heed the call of conscience in matters of religion and belief, living out its dictates openly, peacefully, and without fear.
- It is a broad and inclusive right that requires protection of the allied rights of expression, association, and assembly.
- No individual or entity has the right to force others to act against their conscience or prevent them from answering its call in a peaceful manner.

Important facts

- Distribution of religion in India:
 - 79.8% of the population is Hindu.
 - – 14.2% Islam (The Muslim population is spread throughout the country)



- – **2.3% Christianity** (in Kerala, Goa, Tamil Nadu and Meghalaya)
- – **1.7% Sikhism**, (Punjab region)
- – **1% Buddhist** (in the Maharashtra area)
- – **0.6% Jainism** (in the regions of Maharashtra, Rajasthan, Gujarat, and major cities)
- – **0.4% Other** (Judaism, Zoroastrianism, Bahá'í, tribal religions)
- India's massive population includes not only the vast majority of the world's Hindus, but also the second-largest group of Muslims within a single country, behind only Indonesia.
- India is a religiously pluralistic and multiethnic democracy – the largest in the world.**
 - Its constitution provides for **freedom of conscience** and the **right to profess, practice and propagate religion**.
 - It has protections for minorities against discrimination on the grounds of religion or caste (a strict social stratification based on Hinduism).
- In 1976, the constitution was amended, officially making the country a **secular state**. At the same time, a directive in the constitution prohibits the slaughter of cows – an animal Hindus hold sacred – which each state has the authority to enforce.

Article 25	Article 26	Article 27	Article 28
It imparts freedom of conscience and free profession, practice and propagation of religion.	It gives freedom to manage religious affairs.	It sets freedom as to payment of taxes for promotion of any particular religion.	It gives freedom as to attendance at religious instruction or religious worship in certain educational institutions.
It is available to persons.	It is available to religious denominations.	It is available to a person against religious denomination(s).	It is applicable to educational institutions. A person can invoke it.

Religious Freedom Protections and Concerns

- Articles 25 to 28 in the Constitution of India provide the right to freedom of religion.
- Article 25 of the Indian Constitution states that "all persons are equally entitled to freedom of conscience and the right freely to profess, practice and propagate religion" in a manner that does not adversely affect public order, health, or morality.
- India's federal law provides "minority community" status for six religious groups—Buddhists, Christians, Jains, Muslims, Parsis (Zoroastrians), and Sikhs—that together comprise about one-fifth of India's population.
- The laws state that the government will protect the existence of these minorities and encourage conditions for the promotion of their individual identities.
- The Preamble to the Indian Constitution has the word "secular".

The confused State

- In *SR Bommai vs Union of India* (1994), the Supreme Court held that "secularism is a basic feature of the Constitution". The State treats equally all religions and religious denominations. Religion is a matter of individual faith and cannot be mixed with secular activities.
- However, in *Sri Jagannath Temple, Puri Management Committee vs Chintamani Khuntia* (1997), it was held by the Supreme Court that the management of a temple by the State did not infringe on Articles 25 and 26, as it is a "secular act".
- Further, Article 26 says that all denominations can manage their own affairs in matters of religion. Religious organisations can be banned for sedition or disturbing communal harmony.

Right to conscience

- The right to conscience is enshrined in Article 25 of the Constitution along with the right to profess, practice and propagate religion.
- Given that India is a secular country, these rights apply to individuals of all religions equally.
- According to the courts, the right to conscience and religion also means that one person's religious rights cannot infringe upon the right of another.

Anti-conversion laws

- The trend for communalisation of the issue of conversion is not new and has been sustained over the last 50 years in postcolonial India. Though, freedom of religion is basic to these articles of the Constitution, but in the last few decades in general and recent years in particular, the degree of religious freedom in India has declined.
- For instance, ten states have introduced so-called "anti-conversion" laws.
- Odisha was the first state that enacted an anti-conversion law — the Orissa Freedom of Religion Act 1967, passed in 1968.
- Gujarat passed its own version of the law in 2003, prohibiting conversions from one religion to another by the use of "force, allurement, or fraudulent means".
- In 2006, Rajasthan passed a similar Bill but the Governor did not give assent to it because of complaints from minority communities.
- In the same year, Tamil Nadu repealed the anti-conversion legislation passed in 2002 due to protests by Christian minorities.
- Similar kind of legislation was passed in Jharkhand in 2017, Uttarakhand in 2018, Himachal Pradesh in 2019.
- In 2020, the Uttar Pradesh government further entrenched "communalism by law" in the state by activating **The Uttar Pradesh Prohibition of Unlawful Conversion of Religious Ordinance, 2020**.

- After UP, Madhya Pradesh became the latest state to pass an ordinance prohibiting forced religious conversion to check what it calls 'love jihad'.

Religious conversion in States

the quint

Religious Conversion in Other States

State	Year	Ban on Conversion on Grounds of Force/Fraud/Greed	Ban on Conversion on Grounds of Marriage
Odisha	1967	Yes	No
Madhya Pradesh	1968	Yes	No
Arunachal Pradesh	1978	Yes	No
Chhattisgarh	2006	Yes	No
Gujarat	2003	Yes	No
Himachal Pradesh	2019	Yes	Yes
Jharkhand	2017	Yes	No
Uttarakhand	2018	Yes	Yes
Uttar Pradesh	2020	Yes	Yes

Intersection of Special Marriage Act and 'Love Jihad'

- The Uttar Pradesh government has already cleared a law against forceful religious conversions.
 - The law, however, is now being used to target consenting interfaith couples, including those whose parents' agree to the marriage.
- Other states, such as Madhya Pradesh and Haryana, are now contemplating laws on 'Love Jihad' or 'anti-conversion', which use the garb of forced conversions to target inter-faith marriages and require individuals to take special permissions if they wish to convert their religion in order to marry under personal laws.
- Contrary to the premise of the Special Marriage Act that accepts the existence of interfaith relationships, the current 'Love Jihad' laws create scenarios that suggest that every case of inter-faith marriage is actually a case of forced conversion.
- All in all, the discourse around marriage in India ceases to place adult individuals at the center.
- Familial and societal forces have always played a role in deciding young people's futures.
- By making the implementation of the Special Marriage Act so complex, the law is further complicating the lives of young people who have decided to choose their own partners.
- Lastly, the attitude of the law is reflected in the name of the act itself — the 'Special' Marriage Act.

- A marriage that is deemed special because it is seen as an anomaly, something that is out of the ordinary and deserves constant scrutiny.

What is adding to the challenge?

- Shameful conduct of leaders:** Communal leaders mainly are behind these riots.
- Corrupt media:** The real duty of media was to impart education, eradicate narrow-mindedness in people, put an end to communal feelings, encourage mutual understanding, and create a common Indian nationalism. But they have turned their main business to spread ignorance, preach narrowness, create prejudice, lead to rioting and destroy Indian common nationalism.
- Economic failure:** If one looks for the roots of these communal riots, the reason seems to be economic (poverty, unemployment).

Ethical concerns

- Privacy:** It raises concerns about the privacy of individuals who wish to adopt other religions.
- Liberty:** Not to mention the liberty of an individual to choose a partner from another religion.
- Freedom:** It undermines the free choice of adult women by referring to terms like "allurement". It fails to see that in matters of love, faith is secondary, and the choice is primary.
- Criminalization:** Excessive legislation only criminalises everyday acts.

The role of ethics in religion

- Religion has a high impact on the worldviews of individuals and societies. It has been the brain behind the ethics that govern individuals and communities globally.
- Most religions have an ethical component. It is significantly broader than the common conception of analyzing right and wrong. Ethics deals with ideas such as Right, Good and Duty and these concepts were discussed in ancient Greece by Plato and Aristotle in the 3rd & 4th Century BCE.
- A central aspect of ethics is "the good life", the life worth living or life that is simply satisfying, which is held by many philosophers to be more important than traditional moral codes.
- Revealed religions like Zoroastrianism, Judaism, Christianity and Islam do prescribe some clear and unambiguous rules to follow. If their scriptures were authored or dictated by God, then the commands in them are God's own commands. They cannot be changed if human circumstances change or ethical ideas progress.
- If religion has a role in moral decision-making, then what should be that role? In America, for

many individuals, their religion is a centrally defining characteristic of who they are, such that they would be nearly incapable of making ethical decisions independently of their religious beliefs.

- The link between religion and morality is best illustrated by the *Golden Rule*. Virtually all of the world's great religions contain in their religious texts some version of the Golden Rule: "Do unto others as you would wish them do unto you". In other words, we should treat others the way we would want to be treated. This is the basic ethic that guides all religions. If we do so, happiness will ensue.

How to cure religious violence?

- If there is to be any lasting solution to all these communal riots, it lies only in the improvement in the economic condition of the country; because the economic condition of the common people is so degraded.
- Furthermore, religious violence can be cured by deeper understanding of religion. An international campaign must be launched to teach people to respect other religions.
- If the generation is being taught that Christians are disbelievers, Muslims are terrorist, Hindus are

extremist. Then what could be expected? We are pouring hate in them and we will get hate out of them.

- Every religion needs to respect other religions, despite the differences. It doesn't matter if there god is different from ours, we must be tolerant towards others.

◎ CONCLUSION

The condition of Bharatvarsha/India is indeed pitiable today. The devotees of one religion are sworn enemies of the devotees of another religion. Though India advertises itself as a 'multi-religious' democracy, the situation is quite different today. By claiming itself an adherent to global norms, it also aspires to be on the table of **global rule making**. However, for a country with such stated ambitions, its record on religious freedom is deeply disconcerting. The catalogue of religious violence, incitement and wrecking of the rule of law in several parts of the country remains an unsettling fact. The country needs to understand that 'rule of law' and 'communal harmony' are essential for any functional democracy.

SECTION: B

(PRELIMS)

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ADOPT A HERITAGE: APNI DHAROHAR, APNI PEHCHAAN

◎ **CONTEXT:** The Ministry of Tourism took a review meeting of the “Adopt a Heritage: Apni Dharohar, Apni Pehchaan” project.

◎ **ABOUT:** What is Adopt a Heritage Scheme?

- The ‘Adopt a Heritage: Apni Dharohar, Apni Pehchaan’ scheme is an initiative of the **Ministry of Tourism**, in collaboration with the **Ministry of Culture** and the **Archaeological Survey of India**.
- It was launched in September 2017 on World Tourism Day.
- Under it, the government invites entities, including public sector companies, private sector firms as well as individuals, to develop selected monuments and heritage and tourist sites across India.
- **Aim:** The project aims to encourage companies from the public sector, private sector, trusts, NGOs, individuals, and other stakeholders to become ‘**Monument Mitras**’.
 - The Monument Mitras are selected by the ‘oversight and vision committee,’ co-chaired by the Tourism Secretary and the Culture Secretary, on the basis of the bidder’s ‘vision’ for development of all amenities at the heritage site.

Present status and progress

- Under the project, 27 Memorandum of Understandings (MoUs) have been awarded to 12 **Monument Mitras** for twenty-five (25) sites and two (2) Technological interventions across India.
- Under the MoUs handed over for implementation of amenities includes basic facilities such as Dustbin; Public Conveniences; Clean drinking water facility; Illumination; Ease of Access; Aesthetics and cleanliness of site; Bench Installations, Waste Management; App based Multi lingual Audio Guide; Installation of Digi Kiosk and Ticketing Kiosk; Signage -Descriptive and directional; Wi-Fi.

Recent efforts to boost tourism

- Swadesh Darshan
- PRASHAD Scheme
- Ek Bharat, Shresth Bharat
- Dekho Apna Desh

- In the year 2019, India’s rank in Travel and Tourism Competitiveness Index of World Economic Forum has moved to **34th** position from **65th** rank in 2013.
- Foreign Tourist Arrivals also registered a growth of 3.2 percent last year.

GIANT ICEBERG A68

◎ **CONTEXT:** The world’s (former) largest iceberg continues to break apart into smaller pieces on the doorstep of a major marine wildlife haven and home to millions of macaroni and king penguins in Antarctica. It has now split into 4 distinct pieces.

© ABOUT :

What is iceberg A68?

- A68a became the world's largest iceberg when it split from Antarctica's Larsen C ice shelf in July 2017. A68a is an iceberg roughly the size of the state of Delaware.
- The massive chunk of ice has been drifting northward ever since. As recently as April, it measured 2,000 square miles (5,100 square kilometers), or just over the size of the state of Delaware.
- Since then it has been drifting towards the remote island of South Georgia, which is a British Overseas Territory (BOT).
- On its journey, smaller icebergs have calved from the iceberg and right now, the biggest section of the iceberg is called A68a and spans an area of roughly 2,600 sq. km.

Areas of the new fragments

- **A-68a:** 1,004 square miles (2,600 square km)
- **A-68d:** 56 square miles (144 square km)
- **A-68e:** 253 square miles (655 square km)
- **A-68f:** 87 square miles (225 square km)

What are icebergs?

- Icebergs are pieces of ice that formed on land and float in an ocean or lake. Icebergs come in all shapes and sizes, from ice-cube-sized chunks to ice islands the size of a small country.
- The term "iceberg" refers to chunks of ice larger than 5 meters (16 feet) across.
- Smaller icebergs, known as bergy bits and growlers, can be especially dangerous for ships because they are harder to spot.
- The North Atlantic and the cold waters surrounding Antarctica are home to most of the icebergs on Earth.

Iceberg calving

- Icebergs form when chunks of ice calve, or break off, from glaciers, ice shelves, or a larger iceberg.
- Icebergs travel with ocean currents, sometimes smashing up against the shore or getting caught in shallow waters.
- The iceberg's calving is thought to be a natural event and not a result of climate change.
- However, some models predict that a warming Antarctica in the future could mean more calving events as ice shelves and glaciers retreat.

What's next?

- It is now hoped that the biggest pieces will be carried north of the island on a fast-moving current known as the **Southern Antarctic Circumpolar Current Front**.
- However, if any of the pieces, or any potential new pieces, were to get caught on the shelves, they could still be big enough to cause disruption to the local wildlife.

LIGHTNING IS STILL A BIG 'NATURAL KILLER' IN INDIA

© CONTEXT:

Lightning strikes have caused 1,771 deaths between April 1, 2019 and March 31, 2020, according to a report.

© ABOUT:

What is Lightning?

- Lightning is a very rapid and massive discharge of electricity in the atmosphere, some of which is directed towards the Earth's surface.
- It is a sudden high-voltage discharge of electricity that takes place between clouds, or the charge may travel all the way to the ground.
- A lightning bolt can carry as much as 300 KV of energy.
- The surrounding air can heat up to 50,000 degrees, which means that one can literally burst into flames or be left with deep entry and exit wounds if struck by lightning.

How these discharges are generated (the process)?

- These discharges are generated in **giant moisture-bearing clouds** that are **10-12 km tall**.
- The base of these clouds typically lies within 1-2 km of the Earth's surface, while their top is **12-13 km away**.
- Temperatures towards the top of these clouds are in the range of minus 35 to minus 45 degrees Celsius.
- As water vapour moves upward in the cloud, the falling temperature causes it to condense. Heat is generated in the process, which pushes the molecules of water further up.
- As they move to temperatures below zero degrees Celsius, the water droplets change into small ice crystals.
- They continue to move up, gathering mass — until they are so heavy that they start to fall to Earth.
- This leads to a system in which, simultaneously, smaller ice crystals are moving up and bigger crystals are coming down.
- Collisions follow, and trigger the release of electrons — a process that is very similar to the generation of sparks of electricity. As the moving free electrons cause more collisions and more electrons, a chain reaction ensues.
- This process results in a situation in which the top layer of the cloud gets positively charged, while the middle layer is negatively charged.
- The electrical potential difference between the two layers is huge — of the order of a billion to 10 billion volts. In very little time, a massive current, of the order of 100,000 to a million amperes, starts to flow between the layers.
- An enormous amount of heat is produced, and this leads to the heating of the air column between the two layers of the cloud.
- This heat gives the air column a reddish appearance during lightning. As the heated air column expands, it produces shock waves that result in thunder.

How does this current reach the Earth?

- While the Earth is a **good conductor of electricity**, it is **electrically neutral**.
- However, in comparison to the middle layer of the cloud, it becomes positively charged.
- As a result, about 15%-20% of the current gets directed towards the Earth as well. It is this flow of current that results in damage to life and property on Earth.

Why lightning strikes tall objects?

- There is a greater probability of lightning striking tall objects such as trees, towers or buildings.
- Once it is about 80-100 m from the surface, lightning tends to change course towards these taller objects.

- This happens because air is a poor conductor of electricity, and electrons that are travelling through air seek both a better conductor and the shortest route to the relatively positively charged Earth's surface.

Safety tips when lightning strikes

- Seek shelter inside a large building or a car
- Get out of wide, open spaces and away from exposed hilltops
- If you have nowhere to shelter, make yourself as small a target as possible by crouching down with your feet together, hands on knees and head tucked in
- Do not shelter beneath tall or isolated trees
- If you are on water, get to the shore and off wide, open beaches as quickly as possible

AYUSHMAN BHARAT PRADHAN MANTRI JAN AROGYA YOJANA (AB-PMJAY) SEHAT SCHEME

◎ **CONTEXT:** Prime Minister Narendra Modi launched Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) SEHAT scheme for the residents of Jammu and Kashmir.

◎ **ABOUT:** What is AB-PMJAY SEHAT Scheme?

- The Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) SEHAT scheme would work in convergence with Pradhan Mantri Jan Arogya Yojana (PM-JAY)
- **Beneficiaries:** All residents of Jammu and Kashmir, irrespective of their socio-economic status, will be covered under the scheme.
- The scheme will benefit as many as 21 lakh eligible people on the basis of **Socio-Economic and Caste Census (SECC) 2011**.
- The beneficiaries will get the **Universal Healthcare Coverage (UHC)** as per the SECC 2011 database.

Pradhan Mantri Jan Arogya Yojana (PM-JAY)

- The PM-JAY is world's largest health insurance/assurance scheme fully financed by the government.
- It provides a cover of Rs 500,000 per family per year for secondary and tertiary care hospitalisation across public and private empanelled hospitals in India.

- Under the AB-PMJAY SEHAT scheme, the central government will financially cover up to Rs 5 lakh per family on a floater basis to all residents of Jammu and Kashmir.
- Notably, AB-PMJAY SEHAT scheme has also a provision for operational extension to approximately Rs 15 lakh additional families.

Significance of the Scheme

- Under the scheme, treatment is not limited to government and private hospitals in Jammu and Kashmir only. Rather, treatment can be availed from thousands of hospitals empanelled under this scheme in the country.

- The scheme will ensure universal health coverage, and focus on providing financial risk protection and ensuring quality and affordable essential health services to all individuals and communities

ILP SYSTEM

◎ **CONTEXT:** Union Home Minister Amit Shah during his visit to the northeast heralded the recently granted Inner-Line Permit (ILP) system as the best gift for the people of Manipur.

◎ **ABOUT:** What is the ILP system?

- ILP is issued to grant inward travel permission to an Indian citizen into a protected area for a limited period.
- No Indian citizen can visit any of these states unless they belong to that state, nor can they overstay beyond the period specified in the ILP.
- Different types of permits under the ILP include permit for tourists, for tenants and for ones visiting for employment purposes.
- **Issuer:** An ILP is issued by the state government concerned and can be obtained after applying either online or physically. Dates of travel and areas that the ILP holder can travel to are mentioned in the document.
- The objective behind this is to prevent settlement of other Indian nationals in ILP states so as to protect the indigenous population and their access to land, jobs, and other facilities.

ILP and Manipur

- The ILP system was formally introduced in Manipur on January 1, 2020.
- Manipur is the fourth state in the northeast where this system is applicable. Other states under the ILP regime are:
 - Arunachal Pradesh
 - Nagaland
 - Mizoram

Origin of the concept

- The concept of the ILP comes from the colonial area.
- Under the **Bengal Eastern Frontier Regulation Act, 1873**, the British framed regulations restricting the entry and regulating the stay of outsiders in designated areas and was done to protect their own trading interests in these areas.
- Later, in 1950, the Indian government made it applicable for Indian citizens, replacing **"British subjects."**
- This was done as a measure for specific northeastern states to protect the interests of indigenous tribal communities.

KISAN RAIL

◎ **CONTEXT:** Prime Minister Narendra Modi flagged off the 100th run of Kisan Rail in Maharashtra with the objective to empower farmers of the country.

◎ ABOUT:

What is Kisan Rail?

- The first Kisan Rail train service on the Indian Railways network was launched on 7 August 2020. The train runs between Devlali in Maharashtra and Danapur in the state of Bihar.
- The Kisan Rail consists of 10 parcel vans as well as one luggage cum brake van and operates on a weekly basis.
- The first-ever multi-commodity train service, the Kisan Rail carries vegetables such as cauliflower, capsicum, cabbage, drumsticks, chillies, onion, etc., as well as fruits like grapes, pomegranate, banana, etc.
- Equipped with frozen containers, the Kisan Rail train service is building a seamless national cold supply chain of meat, milk, and fish.

Key-highlights

- The 100th run of the Kisan Rail was flagged off from Sangola in Maharashtra to Shalimar in West Bengal virtually.
- Currently, of only a handful of trains plying across the India connecting states like Andhra Pradesh, Maharashtra, Bihar and Nagpur, there are nine Kisan Rail running on nine routes.

Significance of the initiative

- **Seamless national cold supply chain:** This train will help in bringing perishable agricultural products like vegetables, fruits to the market in a short period of time. The train with frozen containers is expected to build a seamless national cold supply chain for perishables, inclusive of fish, meat and milk.
- **Doubling farmers' incomes by 2022:** This train is a step towards realizing the goal of doubling farmers' incomes by 2022. Indian Railways aims to help double farmers' income with the launch of Kisan Rail.

ZERO COUPON BONDS

◎ CONTEXT:

The government has used financial innovation to recapitalise Punjab & Sind Bank by issuing the lender Rs 5,500-crore worth of non-interest bearing bonds valued at par.

◎ ABOUT:

- A zero coupon bond is a type of fixed income security that does not pay any interest to the bondholder. It is also known as a discount bond.

Coupon

- A coupon is an interest the bond issuer pays the bondholder.
 - Coupon payments happen periodically from the time of issuance of the bond until its maturity.
- They are long term debt instruments.
 - These bonds come with 10-15 years maturity. At the time of maturity, the investor is paid the face value or par value.
 - These bonds are issued at a discount to the face value. In other words, it trades at a deep discount.
 - The return an investor earns is the principal amount plus interest amount. The interest gets compounded semi-annually.

Price of Zero Coupon Bond calculated annually

$$\text{Face Value} / (1 + r)^n = \text{price of bond}$$

- **Face value** = Future value or maturity value of the bond
- **r** = Required rate of return or interest rate
- **n** = Number of years until maturity

Who can invest?

- These recapitalisation bonds are special types of bonds issued by the Central government specifically to a particular institution.
- Only those banks, whosoever is specified, can invest in them, nobody else. It is not tradable, it is not transferable.

Advantages of investing

- Significant returns on maturity
- Fixed interest
- Long investment horizon

Limitations of investing

- No regular income
- Interest rate risk
- Illiquidity in the secondary market
- Duration risk

INDIA'S 1ST INDIGENOUSLY DEVELOPED PNEUMOCOCCAL VACCINE "PNEUMOSIL"

◎ **CONTEXT:** The Government launched the country's first pneumococcal conjugate vaccine "Pneumosil" developed by Serum Institute of India in collaboration with partners like the Bill and Melinda Gates Foundation.

◎ **ABOUT:** What is Pneumonia?

- Pneumonia is an infection in one or both lungs. The infection causes inflammation in the air sacs in lungs, which are called alveoli.
- The alveoli fill with fluid or pus, making it difficult to breathe.
- **Cause:** Bacteria, viruses, and fungi cause it.
 - **Bacteria:** Mycoplasma pneumonia, Streptococcus pneumonia, Legionella pneumophila
 - **Virus:** flu (influenza virus), cold (rhinovirus), Respiratory syncytial virus (RSV)
 - **Fungi:** Pneumocystis jirovecii

How threatening is the disease?

- Pneumonia is the single-largest infectious cause of death among children under five years, worldwide.

- Pneumococcal disease is a significant contributor to the under-five mortality rate worldwide.
- Annually India witnesses an estimated 71 per cent of pneumonia deaths and 57 per cent of severe pneumonia cases.
- Every year, nearly 67,800 children under five years of age die from pneumococcal diseases and recognising its widespread fatality, WHO recommended the inclusion of PCV in routine childhood immunisation programmes in all countries.

The vaccine

- Pneumosil is similar as the paediatric pneumococcal vaccine already on the market and targets serotypes 1, 5, 6A, 6B, 7F, 9V, 14, 19A, 19F and 23F, providing effective and long-lasting protection for children against pneumococcal diseases.
- It is **WHO pre-qualified** for its procurement by United Nations Agencies and GAVI, with its safety and immunogenicity profile favourably comparable to both currently available licensed and WHO pre-qualified PCVs worldwide.
- The vaccine targets the **pneumococcal bacterium**, which causes pneumonia and other serious life-threatening diseases such as meningitis and sepsis.
- The vaccine is aimed at improving pneumococcal conjugate vaccine affordability and enabling sustainable access for low- and middle-income countries.
- The vaccine makes SII the world's third supplier of pneumococcal conjugate vaccines (PCV) under the pneumococcal Advance Market Commitment (AMC), and the first developing country vaccine manufacturer to access the global PCV market.

NANOMICELLES: USING NANOPARTICLES FOR CANCER TREATMENT

◎ CONTEXT:

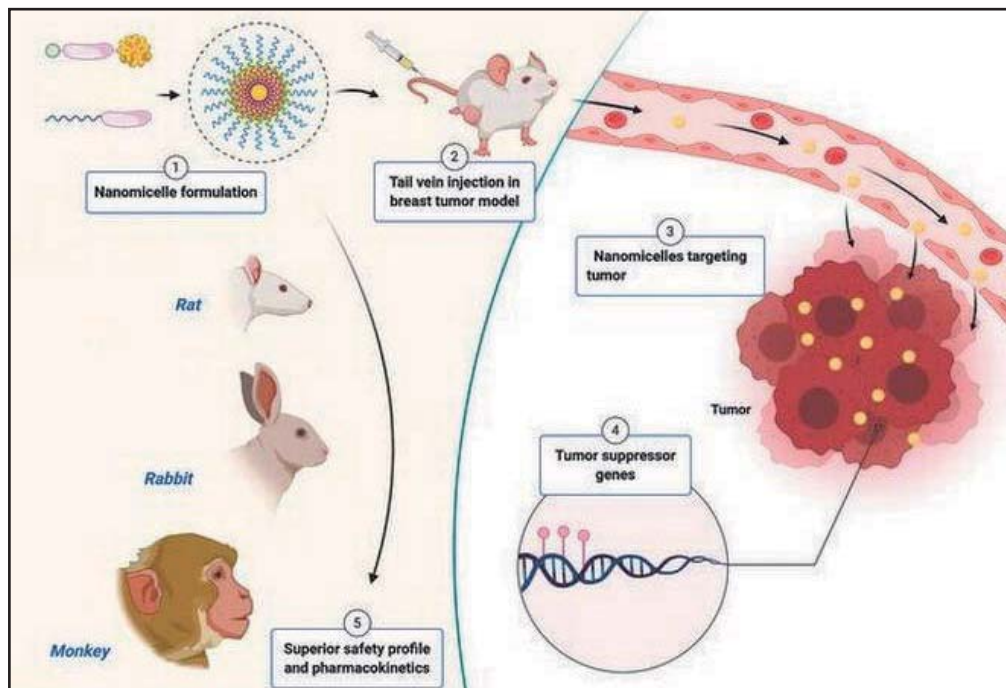
With the advance in nanotechnology, researchers across the globe have been exploring how to use nanoparticles for efficient drug delivery. Now researchers have created a nanomicelle that can be used to deliver a drug named docetaxel, which is commonly used to treat various cancers including breast, colon and lung cancer.

◎ ABOUT:

- Similar to nanoshells and nanovesicles, nanomicelles are extremely small structures and have been noted as an emerging platform in targeted therapy.
- Nanomicelles are globe-like structures with a hydrophilic outer shell and a hydrophobic interior.
 - The hydrophobic core interacts with hydrophobic drugs/agents, whereas the hydrophilic tail helps surrounding with water and enhances solubility.
- This dual property makes them a perfect carrier for delivering drug molecules.
- The nanomicelles are less than 100nm in size and are stable at room temperature.
- Once injected intravenously these nanomicelles can easily escape the circulation and enter the solid tumours where the blood vessels are found to be leaky.

Advantages

- Nanomicelles offer many advantages, including
 - small size (10–50 nm)
 - structural stability
 - less toxicity



- ability to entrap large amounts of hydrophobic drugs/contrast agent and solubilize in water
- conjugation with target ligand and stimuli-sensitive regions

The need

- The ideal goal for cancer therapy is destroying the cancer cells without harming healthy cells of the body, and chemotherapeutics approved for treatment of cancer are highly toxic.
- The currently used docetaxel is a highly hydrophobic drug, and is dissolved in a chemical mixture (polysorbate-80 and alcohol).
- This aggravates its toxic effects on liver, blood cells, and lungs.
- It necessitated urgent and unmet need to develop effective drug delivery vehicles for docetaxel without these side effects.

OXFORD COVID VACCINE AUTHORISED

◎ CONTEXT:

The UK has become the first country to authorise the Oxford-AstraZeneca COVID-19 vaccine for public use, with roll-out to start in the first week of 2021. This vaccine is the second to be authorised in the UK — following the Pfizer vaccine.

◎ ABOUT:

- The Oxford vaccine is made from a weakened version of a common cold virus (known as an adenovirus) from chimpanzees.
- It has been modified to look more like coronavirus - although it can't cause illness.
- When the vaccine is injected into a patient, it prompts the immune system to start making antibodies and primes it to attack any coronavirus infection.
- The vaccine is being manufactured in Europe and also in large numbers in India and is part of the **COVAX initiative — led by Gavi, the Vaccine Alliance**.
- It may be the first western-developed vaccine that is rolled out in large numbers in low- and middle-income countries at some point in 2021.

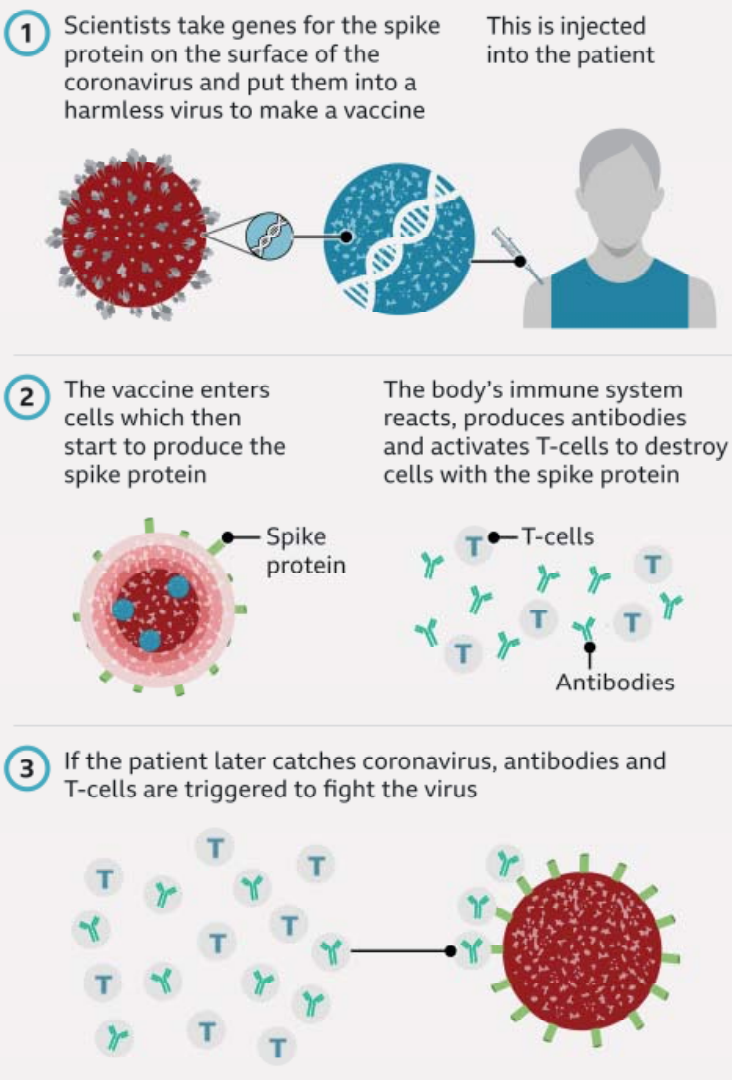
How is this vaccine different from Pfizer and Moderna?

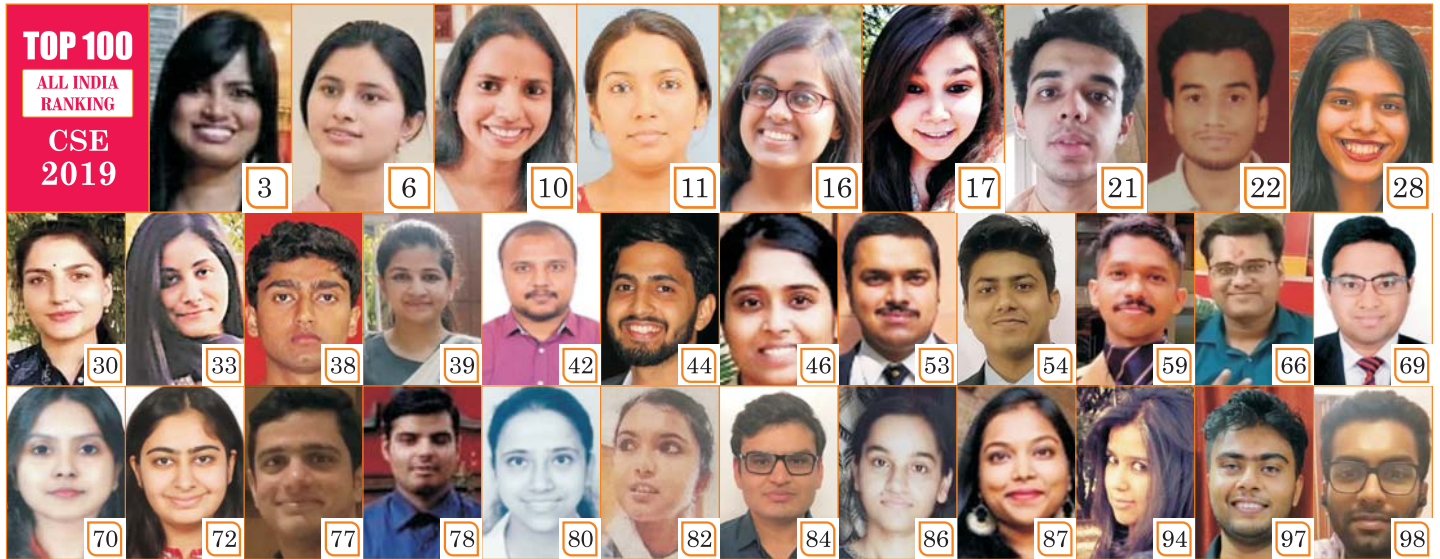
- The three leading vaccines all deliver part of the coronavirus's genetic material into the body's cells, leading the cells to produce copies of part of the virus- the spike protein, that the body can then mount an immune response against.
- The Oxford vaccine makes this delivery using an adenovirus vector, whereas vaccines from Pfizer and Moderna use an mRNA platform.

Why Oxford vaccine is a better solution?

- **Easy to manage:** The Oxford vaccine only needs to be kept at a chilled temperature, whereas Pfizer's requires -75°C storage and Moderna's to be kept at around -20°C.
- **Cheap and affordable:** At US\$2-3 per shot, the cost per dose of the Oxford vaccine is much cheaper than the other leading vaccines, making it a potential long-term option for governments.

How the Oxford vaccine works





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