



MAINS

- GS-I Medical Termination of Pregnancy Act, 2021
- GS-II BIMSTEC finalizes major connectivity master plan for Bay of Bengal region
- GS-III Indian Health Sector: Opportunities and Challenges
- GS-III Two poles of climate targeting: the Net zero-emission and the Climate Justice
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PRELIMS

POLITY • AI-driven research portal for Supreme Court is launched **& GOVERNANCE** ECONOMY • Finetuning of inflationforecasting model Global minimum corporate tax rate • Pre-pack under Insolvency and Bankruptcv Code ENVIRONMENT

Climate change shrinks marine life richness near the equator Climate mapping can point to danger spots of Africa's cvcads Third of Antarctic ice shelves ' is at risk of collapse amid 4C global heating' SCIENCE & Spices Board signed a deal with UNDP to develop **TECHNOLOGY** a blockchain-powered traceability interface Study Animals through DNA from surrounding Air • US Navy exercise in India's **Exclusive Economic Zone** without prior consent



- Disclaimer -

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

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

CURRENT AFFAIRS ANALYST WEEK- 2 (APRIL, 2021)

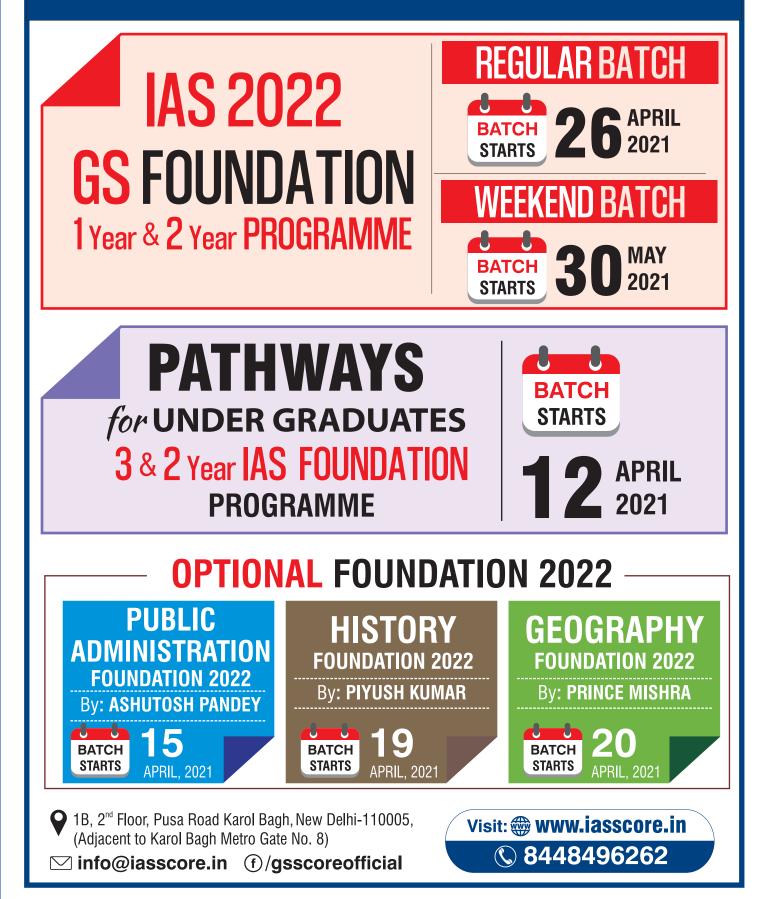
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SECTION: A (MAINS)

CURRENT AFFAIRS

MEDICAL TERMINATION OF PREGNANCY ACT, 2021

CONTEXT

Recently, the Medical Termination of Pregnancy (Amendment) Bill (MTP), 2020 received the President's assent and has become law.

• BACKGROUND

- Voluntarily terminating a pregnancy is a criminal offence under the Indian Penal Code, 1860
- The Medical Termination of Pregnancy (MTP) Act, 1971 allows for aborting the pregnancy by medical doctors (with specified specialisation) on certain grounds.
- The MTP Amendment Act 2020 amends the 1971 Act, which regulates the terms under which a pregnancy may be terminated.
- The amendment bill was introduced in Lok Sabha on March 2, 2020, and passed on Mar 17, 2020.
 - The bill amends the MTP Act 1971 to increase the upper limit for termination from 20 to 24 weeks for certain categories of women,
 - It also removes this limit in the case of substantial foetal abnormalities but constitutes Medical Boards at the state level to give clearance to such abortions
- Reasons behind the amendment:
 - ➤ A large number of cases filed before courts seeking permission for aborting pregnancies beyond the 20-weeks on the grounds of foetal abnormalities or pregnancies due to rape
 - With the advancement in medical technology, pregnancies now can be safely terminated well beyond the existing limit of 20 weeks. So, there is a scope to increase the upper limit for terminating pregnancies.

ANALYSIS ANALYSIS

Assessing the cases of 'abortions' in India

- Around 15.6 million abortions take place in India every year, but most of these are expected to be unsafe.
- As per the National Health and Family Survey (2015-16), only 53% of abortions are performed by a registered medical doctor and the balance is conducted by a nurse, auxiliary nurse midwife (ANMs), dai, family member, or self.
- **Unsafe abortion** is the third largest cause of maternal mortality in India.
- Debate around Abortion laws in India rely essentially

on deciding after what point of pregnancy does life begins in the foetus? At what point does the foetus' life become important and it becomes the state's responsibility for its protection?

The dilemma of sex-selective abortions

- The complicated relationship between abortion and the practice of selective abortion of female fetuses has been a dilemma.
- This arises from situations wherein women themselves decide to have sex-selective abortions, which then intersects with the complex understandings of ethics and agency in the context of women's control over their bodies.
- Many women undergo a sex-selective abortion under pressure from their husbands' families, and it is usually not an informed choice that they willingly make.
- Other reasons to abort are almost always shaped by factors like
 - ► Illegitimacy
 - lack of social facilities for childcare that place a disproportionate burden on women
 - ▶ economic constraints, and so on

Where do the issues lie?

- Though, India has legalized abortions as opposed to many other countries. However, even after all these efforts for liberalizing abortions, the subject has often been viewed and subsequently critiqued from various perspectives. These issues vary from:
 - lack of access to safe abortions
 - Act's overlap with other acts such as the Pre-Conception and Prenatal Diagnostic Techniques (PCPNDT) Act 1994 and the more recent Protection of Children from Sexual Offences (POCSO) Act, 2012.

Key features of the MTP Act, 2021

 Changes proposed in conditions for terminating a pregnancy at different gestational periods:



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Time since conception	Requirement for terminating a pregnancy	
	MTP Act, 1971	MTP (Amend- ment) Bill, 2020
Up to 12 weeks	Advice of one doctor (two doctors if >12 and <20)	Advice of one doctor
20 to 24 weeks	Not Allowed	Two doctors
More than 24 weeks	Not Allowed	A Medical board in case of substantial foetal abnormality
Any time during pregnancy	Recommendation of one doctor if immediate abortion needed to save the life of a pregnant woman	

• Termination due to failure of contraceptive method or device:

MTP Act allows termination up to 20 weeks only for married women in case of failure of contraception. The 2020 amendment allows unmarried women as well.

• Medical Boards:

- All state and union territory governments will constitute a Medical Board.
- ➤ The Board will decide if pregnancy may be terminated after 24 weeks due to substantial foetal abnormalities.
- Each Board will have a gynaecologist, paediatrician, radiologist/sonologist, and other members notified by the state government.
- Privacy:
 - A registered medical practitioner may only reveal the details of a woman whose pregnancy has been terminated to a person authorised by law.
 - Violation is punishable with imprisonment up to a year, a fine, or both.

Key concerns regarding the Act

• Conditions for termination of pregnancies

- There are two differing opinions with regard to allowing abortions.
 - Terminating a pregnancy is the choice of the pregnant woman and a part of her reproductive rights.
 - The state has an obligation to protect life and hence should provide for the protection of the foetus.
- Medical Board to decide termination after 24 weeks
 - Time frame for Medical Board's decision not specified
 - Invades privacy of woman involved
- Categories of women who can terminate a pregnancy between 20-24 weeks not specified. The central government will notify these categories.
- It is unclear that if transgender persons will be covered
- Unavailability of qualified medical professionals to terminate pregnancies
 - The All-India Rural Health Statistics (2018-19) indicates that there is a 75% shortage of qualified doctors and gynaecologists. This shortage may continue to limit the access of women to safe abortion services.
- Fear of judgment from medical practitioners in case of unmarried women seeking termination of pregnancy becomes a major hurdle that deters these women from visiting a professional.

• CONCLUSION

The amendment is a step towards the safety and wellbeing of women. Public health experts have welcomed the government's decision. The Bill acknowledges the abortion needs of unmarried women for the first time and is a **progressive step** in ensuring universal access to safe abortion services for women and girls.

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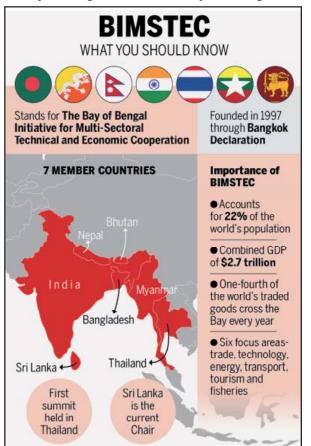
BIMSTEC FINALIZES MAJOR CONNECTIVITY MASTER PLAN FOR BAY OF BENGAL REGION'

CONTEXT

Recently the 17th BIMSTEC Ministerial Meeting of the Foreign ministers of the Bay of Bengal Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) groupfinalized an aspiring air, land-linkages, and sea connectivity master plan that is expected to be adopted at its 5thsummit which isgoing to be hosted by Sri Lanka.

• BACKGROUND

- BIMSTEC constitutes seven Member States:
 - The five countries are from South Asia, including Bangladesh, Bhutan, India, Nepal, Sri Lanka
 - Twoare from Southeast Asia, that includes Myanmar and Thailand
- It came into existence in 1997 through the "Bangkok Declaration".
- Initially, it had four Member States with the acronym 'BIST-EC' (Bangladesh, India, Sri-Lanka, and Thailand - Economic Cooperation).
- It was renamed as 'BIMST-EC' in **BIMSTEC** Transport Infrastructure and Logistic Study (BTILS) project in 2007.
- BIMSTEC connects the littoral countries of the Bay of Bengal and the Himalayan ecologies.



- It has emerged as a major instrument for regional cooperation with its primary focus on economic and technical cooperation among the countries of South Asia and south-east Asia.
- Its stability lies in that it includes two influential powers India and Thailand which lays-off fear the dominance by one big power.
- The grouping promotes increased connectivity with ASEAN countries and supports smaller countries like Bangladesh Bhutan and Nepal to develop connectivity with ASEAN nations.
- Transport and Communication is one of the 14 priority sectors of cooperation of BIMSTEC, since 1997. This sector is led by India.

SECTORS	LEAD COUNTRIES
1. Trade & Investment	Bangladesh
2. Technology/Sub-sector	Sri Lanka
3. Energy	Myanmar
4. Transportation & Communication	India
5. Tourism/Sub-sector	India
6. Fisheries/Sub-sector	Thailand
7. Agriculture/Sub-sector	Myanmar
8. Cultural Cooperation	Bhutan
9. Environment and Disaster Management	India
10. Public Health/Sub-sector	Thailand
11. People-to-People Contact	Thailand
12. Poverty Alleviation/Sub- sector	Nepal

BIMSTEC Priority Sectors:

13. Counter-Terrorism and Transnational Crime	India
14. Climate Change	Bangladesh

• ANALYSIS

What is **BIMSTECMaster Plan for Transport** Connectivity?

- The Master Plan for BIMSTEC Connectivity has taken Trade intensity and the transportation linkages as the two determinants of regional integration.
- The **connectivity master plan**came as a result of consultation of more than a decade among the member states.
- The Asian Development Bank (ADB)also conducted study in 2007 and 2014, which identified 166 connectivity projects at an estimated cost of USD 50 billion. Out of these projects,65 projects were identified as priority projects.
 - The plans talk about the Transportation and Cross-border Facilitation, Multimodal Transport, and Logistics support to create air, water, and land linkages among the Member States.

Arterial hyperlinks

The major arterial hyperlinks included within the master plan are:

- India-Myanmar-Thailand trilateral freeway
- Kolkata-Birgunj and Kolkata-Kathmandu hyperlinks
- Kolkata-Siliguri-Guwahati-Imphal hyperlink
- Kandy-Colombo hyperlink

BIMSTEC Transport Infrastructure and Logistic Study (BTILS)

- **BIMSTEC Transport Infrastructure and Logistic Study (BTILS)** project was commissioned in 2007.
 - It was funded by ADB.
 - BTILS submitted the Report in December 2009.
- The purpose of the BTILS are given as:
 - To make a profile for the transports and logistics of the region
 - To identify the hard and soft infrastructure projects which are related to connectivity and trade

- To recommend future BIMSTEC policies and strategies for enhancing the connectivity and trade
- To recommend an effective institutional mechanism for monitoring and facilitation of implementing the priority projects.

Guidelines for the Implementation

- The Master Plan should be in compatibility of the ASEAN Connectivity 2025 Master Plan, but it has to be different.
- It should emphasize on the BIMSTEC's bridge connectivity plan between South and South East Asia, ASEAN, and SAARC.
- Bilateral and trilateral joint Developmental Strategies are to be considered for the implementation of the plan For example, Trilateral Highway linking India, Myanmar and Thailand, Kaladan Multi-Modal Transport project.

Asian Development Bank

- ADB is committed to achieve a prosperous, inclusive, resilient, and sustainable Asia and the Pacific. It is also committed to support its efforts to eradicate extreme poverty.
- The number of ADB members has increased from 31, in 1966, to **68 members. The 49** members are from the Asia and the Pacific; and rest from outside this region.
- Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

BIMSTEC Motor Vehicle Agreement:

- BIMSTEC agreed for the BIMSTEC Motor Vehicle Agreementduring the Goa Retreat in October 2016.
- A Master Plan for BIMSTEC connectivity and BIMSTEC Coastal Shipping Agreement were also agreed to be carved out.
- Substantial progress is made in economic connectivity in terms of taking steps for energizing BIMSTEC integration, such as the BIMSTEC charter, energy grid interconnectivity, completion of the Master Plan for Transport Connectivity etc.
- BIMSTEC countries are currently negotiating the
 - BIMSTEC Coastal Shipping Agreement
 - **>** BIMSTEC Motor Vehicle Agreement
- Through this move the traffic and trade will become easier between the countries India, Bangladesh,



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Bhutan, Myanmar, Nepal, Thailand, and Sri Lanka.

- All vehicles from BIMSTEC nations will require one permit to cross the border of any BIMSTEC member country.
- The BIMSTEC Motor Vehicle Agreement (MVA) will add huge impact on BIMSTEC's economic connectivity.

India-Myanmar-Thailand trilateral freeway

- This involves India, Myanmar, and Thailand, and East-West Corridor.
- The project was conceived in 2002.
- It is a 1360 km transnational highway which connects the Moreh in India, Bagan in Myanmar, and Mae Sot in Thailand.
- The project could also look at extending the highway through other countries such as Cambodia, Vietnam, and Laos.
- The idea behind the project is to connect India up to the East Coast of Vietnam along with boosting connectivity within the BIMSTEC region.



What is the significance of the "BIMSTECMaster Plan for Transport Connectivity"?

 The projectcan play a significant role in accelerating the pace of economic development for the BIMSTEC region through the facilitation of trade and investment, tourism promotion, and peopleto-people contact.

- The plan may enhanceseamless movement of goods and people, will improve transport interconnectivity, and will promote cultural exchange to benefit all parties involved.
- It talks about **inland waterways connectivity** that will give Nepal and Bhutan easy access towards the Bay of Bengal.
- The plan has potential for improving connectivity within the BIMSTEC region and inconnecting India to the east coast of Vietnam.

• CONCLUSION:

Robust connectivity is essentially required for economic integration of the region with smooth crossborder movement of people and goods. A combined effort is required for making seamless multi-mode transport hyperlinks and simplified transit services. The BIMSTEC master plan also seeks to promote synergy with other connectivity frameworks such as the "**ASEAN master plan onconnectivity 2025**". The master plan is also a step towards fulfilling the people's aspirations for better connectivity and integration in the region.



INDIAN HEALTH SECTOR: OPPORTUNITIES AND CHALLENGES

CONTEXT

In Budget 2021 health sector is focused on by Government, which was severely hit by the unprecedented pandemic. The focus has been laid on healthcare and infrastructure with an eye on achieving the vision of Atmanirbhar Bharat.

• BACKGROUND

- The unprecedented COVID-19 pandemic has completely changed the situation no one could ever imagine. Almost all aspects of society have witnessed disruptions.
- However, every challenge comes with various opportunities, so does this pandemic.
- It has opened a wide window of opportunities to restructure and reform the Indian health industry which has been in a bad state of repair.
- Underscoring the significant importance of health and wellbeing for the growth and development of the country, the Budget allocation for the same was increased to ₹2,23,846 crore in 2021-22 as against this year's ₹94,452 crores, according to an official release.
- This manifests into an increase of 137%.

• ANALYSIS

GSSCORE

Assessing Indian Healthcare Industry

- In India, the Health care sector is one of the largest sectors in terms of **both revenue and** employment.
- In India, the health care sector can be categorized into **public and private**.

- Public health care hospitals comprise secondary and tertiary care institutions in urban areas while primary basic facilities are focused in rural areas.
- Private health care sectors provide secondary, tertiary, and quaternary services in metro cities.

Indian healthcare market is expected to increase to Rs. 8.6 trillion (US\$ 133.44 billion) by 2022.

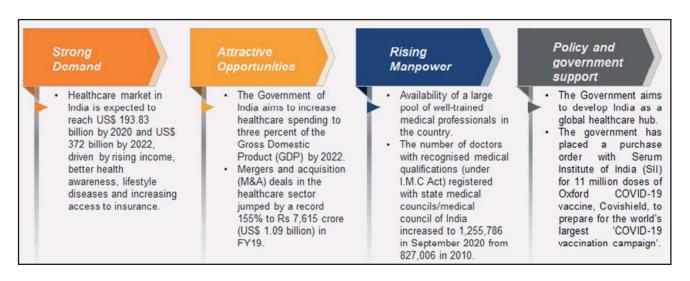
Healthcare Industry in India

• What are the issues and concerns of the Sector?

India's health care sector has achieved some **positive achievements** on the health indicators but suffers some serious shortcomings in care delivery.

RIGHT TO HEALTH

- Articles 39, 41, 42 and 47 in the **Directive Principles of state Policy (DPSP)** contain provisions regarding Health.
- Article 21 provides for the right to life and personal liberty and is a fundamental right.





- Inadequate reach: The inadequate reach of basic healthcare services, shortage of medical personnel, quality assurance, the inadequate outlay for health, and most importantly insufficient impetus to research.
- Inadequate Fund: The inadequate fund allocation by the administrations is one of the grave concerns.
- Optimal Insurance: The concept of health insurance is still not clear in India and the market is still virgin.
- No focus on Preventive Care: In India, there is a very low emphasis on preventive care, which can be proved very effective in solving a lot of problems for the patient in terms of misery or financial losses.
- Less emphasis on Medical Research: In India, there is no much impetus is being given to R&D and cutting-edge technology-led new initiatives. Such technologies could be useful in an unprecedented situation like Covid-19.
- Issue of Policymaking: For providing effective and efficient healthcare services policymaking is certainly an important aspect. In India, the problem is fundamental of supply than demand, where policymaking can be effective.
- Shortage of Medical Workforce: In India, there is a shortage of doctors, nurses, and other staff in the health sector. As per a report laid down by a minister in Parliament, there is a shortage of 600,000 doctors in India.
- Inadequate outlay for health: As per National Health Policy 2002, India contributes only 0.9 percent of its GDP to the Health care sector.
- Lack of structure: Private hospitals are expensive and public hospitals are either not enough for the Indian Population or lack the basic facilities.

• Opportunities in Health Care Sector

- Indian health care sector is expected to increase to Rs. 8.6 trillion (US\$ 133.44 billion) by 2022. It is almost three times which is what it's now in present.
- Data Analytics: With the arrival of the National Digital Health Mission (NDHM), the digital Health ID will come which will store the data of patients. It would help in effective policymaking and private players can get an edge in introducing the new technologies in the market.

Ayushman Bharat Scheme

- It is largest health scheme in the world.
- It would primarily targets the poor, deprived rural families and identified occupational category of families as per the latest Socio-Economic Caste Census (SECC) data for both rural and urban areas.
- The expenses incurred will be shared between Centre and States in 60:40 ratio.
- Private investments: With the advent of information technology and big data it would be easy for private players to invest strategically.
- Employment opportunity: As we know Indian health care sector lacks a workforce, there is a space for thousands of employees.
- Start-ups: With the help of Government and private players an environment of start-ups and entrepreneurship can be created in this field.
- Medical Tourism: India is already one of the favorite medical Tourism Destinations in the world and in the upcoming years this sector can be harnessed efficiently.

Government Initiatives

- CO-WIN: In December 2020, a new COVID-19 vaccine delivery digital platform called 'CO-WIN' is being prepared to deliver vaccines.
- **Budget:** In Union Budget 2020 21, Rs. 35,600 crore (US\$ 5.09 billion) has been allocated for nutrition-related programs.
- Rs. 69,000 crores (US\$ 9.87 billion) outlay announced for the health sector that is inclusive of Rs. 6,400 crore (US\$ 915.72 million) for PMJAY in Union Budget 2020–21.
- The Government of India aims to increase healthcare spending to 3% of the Gross Domestic Product (GDP) by 2022.
- Social determinants of health (SDH) approach: Over the last decade, the Government has been silently working on translating the SDH framework into practice, with key interventions in the areas of:
 - nutrition (National Nutrition Mission)
 - drinking water (Har Ghar Jal)
 - indoor air pollution (*Ujjwala Yojna*)
 - sanitation (Swachh Bharat)
 - road access (Gram Sadak Yojana)
 - gender (Beti Bachao Beti Padhao)



What measures are required in the sector?

- **Improving infrastructure:** There is a need of improvising the infrastructure of public hospitals which have a lot of burden due to the high population in India.
- Focus on private hospitals: Private hospitals must be encouraged by the government because their contribution is important. Private sector also needs to participate because the challenges are significant and these cannot be resolved only by the government alone.
- **Efficiency enhancement:** More medical personnel must be recruited to enhance the capabilities and efficiency of the sector.
- **Technology utilisation:** Technologies must be used to connect the dots in the health system.

Medical devices in hospitals/ clinics, mobile care applications, wearables, and sensors are some forms of technology that should be added in this sector.

 Awareness: People should be made aware of early detection and preventive care. It would help them in saving pocket expenditure also.

ONCLUSION

The year 2021 could be the year when India consolidates and expands on its social determinants of health (SDH) approach. India now needs to sustain its current interest in strategic health policy as a key pillar of the economy.

TWO POLES OF CLIMATE TARGETING: THE NET ZERO-EMISSION AND THE CLIMATE JUSTICE

CONTEXT

By the expected announcement of the Biden Administration, nine of the 10 world's largest economies are going to set the target to achieve net-zero emission targets by 2050 or so.

• BACKGROUND

- The idea of net zero emissions by 2050 is being advocated as a universal remedy for climate change.
- However, the only left-out nation is India, which is also under pressure to adopt it.
- While the feasibility and efficacy of such a strategy for all countries is questionable, it also strikes at the root of the basic tenets of the United Nations Framework Convention on Climate Change (UNFCCC).
- Simultaneously, it undermines the achievement of a 'climate-just world'.
- The question is whether the net-zero will obstacle the climate justice or the climate change cure should be a priority?

• ANALYSIS

What is Net Zero Emission?

- Net Zero Emission is used for achieving the balance between the production and the removal of greenhouse gas from the atmosphere.
- Under the Net Zero Emission, countries are free to emit some emission as long as it is offset by the processes that reduce greenhouse gases already present in the atmosphere.
- The removal could be achieved by planting forest or direct air capture technologies.

What is meant by 'Climate Justice'?

- In a general sense, the term '**Climate justice'** is used to shift the focus just from the greenhouse gas emission or the melting of ice caps towards the civil rights movement which includes people and communities who are most vulnerable to climate impacts.
- In 2015, during the adoption of the UN General Assembly's adoption of Sustainable Development Agenda 2030, Indian Prime Minister stressed reframing 'climate change' to 'climate justice'.
 - He supported the idea that the countries which are still on the developmental path should not

pay the price for the pollution caused by the West.

How India had performed in the past on the climate target front?

- India has been the forerunner in achieving the **Nationally Determined Commitments made under the Paris Agreement in 2015.**
- The country is on track to meet the targets of generating 40% of its power from renewable sources and reducing carbon emission up to 33% to 35% by 2030.
- India is also committed to achieving **175GW** of renewable energy by 2022 and further commits to make it 450 GW.
- In 2015, with France, India has initiated the International Solar Alliance (ISA), which targets to achieve renewable capacity through Solar based energy.
- India has launched the National Wind-Solar Hybrid Policy in 2018.
- India has also adopted the BS-VI emission norms directly from BS-IV norms.

International Solar Alliance

- The International Solar Alliance was launched jointly by the Indian Prime Minister and the French President during the 2015 United Nations Climate Change Conference, or COP21, in Paris.
 - Currently, India is the president of the alliance.
 - ► At present, 89 countries have signed the framework agreement of the ISA.
- The coming into force of the amendment of the ISA framework agreement allows all the member states of the United Nations to join the grouping, including those lying beyond the tropics.
- Expanding the ISA membership is expected to put solar energy on the global agenda with the universal appeal for developing and deploying solar energy.
 - It will also make ISA inclusive.



• Earlier only thecountries located fully or partially between the Tropic of Cancer and the Tropic of Capricorn were the members.

How 'developed' and 'developing' nations are contributing to climate change?

- The sharp change in global temperature after 1981 was mainly due to the developed nations with little contribution from the developing countries.
- It is the developed nations who are responsible for the vast majority of historical emissions.
 - For example, if the United States and India both meet net-zero targets by 2050, the U.S. will have emitted nearly five times carbon dioxide into the atmosphere as India.
- Now the demand for a common target and timetable is putting pressure on the developmental activities in India.
- The international order should be justiciable in terms of differential treatment for the developed and developing nations.

Balancing between the Net Zero Target and climate justice

- India is among the most vulnerable countries to climate change and going through the current emission will double its emission by the midcentury.
- Annual emissions make India the fourth largest emitter though the climate is impacted by cumulative emissions of all the countries, with India contributing only 3% compared with 26% for the United States and 13% for China.
- The road towards development and the reduction in targets can be achieved by sticking to its targets under the **Paris Climate Agreement** for renewable energy.
- It becomes imperative for India to reduce its emission by consistent efforts and renewable energy efforts to achieve the Net Zero target India.
- In India, more than 1.3 billion of its population is in poverty and they lack basic facilities such power, roads, cars, factories, and industries, which are necessary for the progress. Thus, only focusing on clean climate would be unfair.

Paris Climate Agreement

- It is a legally binding international agreement on climate change.
- It was adopted at Conference of the Parties COP 21 in Paris in December 2015, by 196 countries.
- It aims to limit global warming to **limit the temperature rise below 2° Celsius, and preferably limit it to 1.5° Celsius,** compared to pre-industrial levels.
- To achieve the long-term temperature goal the countries are required to achieve global peaking of greenhouse gas emissions.

Suggestions for achieving the net-zero target

- Technology innovation: In curbing emissions, India has advantages over others as most of its factories, vehicles & power plants are yet to be built. It can avoid pollution by locking in polluting technology.
- **Sectoral targets**: India can set a target year for its peak emissions and sectoral target for decarbonization.
- Environment-friendly environment: An environmentally friendly business environment for carbon-reducing technologies and processes can be adopted.
- **Cooperation**: The transfer of technology and adequate financing and investment can be sought from the developed nations. For example, India and Sweden along with other partners will be launching the "Industry Transition Group." Similar initiatives could be taken forward.
- **Renewable energy**: India is a world leader in generating cheap power from solar, water, and wind, and it has plenty of scopes to expand on this front. The savings from reduced oil imports would also make up for the costs of the transition.
- Demographic dividend: A young and entrepreneurial population can also help developclean-energy innovations.
- Transition:India will need a rapid transition from fossil fuels to renewables for everything from generating power to electric vehicles to cooking.
- **Storage and Transmission**: The improvement in the power grid and the storage expansion for wind and solar energy should be adopted.
- **Efficiency**: Buildings and construction need to be more efficient.



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- Carbon Sink: India will have to plant millions of trees to create carbon sinks and deploy technologies to capture and store carbon.
- Otherworld models: India can also learn from China's model in improving its air quality and curbing temperature rise.

China's model for curbing its emission

- Phasing out of older vehicles: The 2008 Beijing Olympics marked the start of significant action taken by the Chinese government as it phased out the 300,000 high polluting vehicles. This brought about an extraordinary change in terms of health benefits.
 - Air quality during the Games improved by about 30% compared to the previous year.
- War on pollution: The Chinese government declared its "war on pollution" by launching a national action plan. The plan introduced better regulation of pollution activities, factories relocation from the populated areas, and government providing subsidies to farmers to discourage agricultural burning.
 - These measures have made a lasting impact and the air quality improved by 35% in the highly polluted northern Chinese cities between 2013 and 2017.
- Targets for air quality: Targeting future regulations requires robust initiatives. To this end, the Chinese government has improved its coverage of air quality monitors considerably.

- The number of federal monitoring stations across China nearly tripled between 2012 and 2020, from 661 to 1,800 with the involvement of local government.
- **Real-time analysis:** A new data platform that ingests real-time data to map air quality across this city has been launched.
 - This data platform automatically detects pollution hotspots and pushes this information to enforcement officers through a simple app.
 - This shows the viability and costeffectiveness of air quality monitoring and its potential to support targeted air quality enforcement.
 - The system is replicable and can help other cities in China and around the world to tackle the lack of capabilities to enforce air quality regulations.

ONCLUSION

The Net Zero emission is not unachievable and could be targeted more smartly by collaboration with the other nations and taking measures that are environmentally friendly and sustainable. The Climate justice and emission targets could be achieved by putting the steps on a right track.



UNDERSTANDING LEFT WING EXTREMISM AND HOW CAN IT BE TACKLED

CONTEXT

At least 22 jawans were killed and 31 sustained injuries in the deadly encounter between security forces and Naxals in Tarrem, along the Sukma-Bijapur border in Chhattisgarh.

• BACKGROUND

- The recent attack has **raised questions** on the claims that left-wing extremism in the country is on the decline.
- Since a crackdown on Maoists started in 2005 in Left Wing Extremism (LWE) affected states, many states have largely tackled the problem.
- The implementation of a socio-economic agenda, coupled with effective police action and fieldlevel intelligence, led to the decline in Maoist activity in those states.
- The **number of districts declared LWE-affected** is today just 90, **down** from over 200 in the early 2000s.
- However, Naxals still have a stronghold in many tribal areas of Chattisgarh.

• ANALYSIS

Understanding Naxalism

- The word 'Naxalism' has been derived from a village named **Naxalbari of West Bengal.**
- The Naxal rebellion started in 1967 in West Bengal. Its aim was the rightful redistribution of the land to working peasants.
- The movement began under the leadership of **Kanu Sanyal** and **Jagan Santhal**.
- Today, it has become one of the **biggest internal security threats** faced by India.
- Modus-operandi of Naxals:
 - To create conditions for non-functioning of the government and actively seek disruption of development activities
 - ► To spread fear among the law-abiding citizens.
- Naxalism is concentrated in Eastern India, particularly an area known as the Red Corridor spread across the states of Chhattisgarh, Odisha, Jharkhand, Bihar, and Andhra Pradesh.
- Some districts of Kerala, Telangana, Uttar Pradesh, etc. are also impacted by Naxalism.
- The inequality and feeling of **relative deprivation**

that persists in India, has become the root cause of Naxalism. This feeling among people had given rise to a commitment to take revenge on the people, who are supposedly the cause of the inequality.

- Currently, the movement is largely supported by marginalized groups of India including Dalits and Adivasis, who have a feeling that they have been constantly neglected by the Government.
- Further, Naxals support Maoist political sentiments and ideology.

Causes of Naxalism

• Development deficit

- Evasion of land ceiling laws by politically and economically stronger classes
- Encroachment and occupation of Government and community lands
- Disruption of the age-old tribal-forest relationship
- Social exclusion
 - Unemployment and Poverty
 - Infrastructure deficit
 - > Lack of education and Poor health facilities
- Governance deficit
 - Violation of human rights
 - Abuse of dignity of life
 - Disconnect with mainstream society
 - Discontent against government

• Exploitative Deficit

- Incompetent, ill-trained, and poorly motivated public personnel
- ► Mismanagement and corruption.
- > Poor implementation of laws and schemes

Steps taken by Government

- The Government has tried to deal with the challenge in a holistic manner, in the areas of
 - ► security

- ▶ development
- ensuring rights and entitlements of local communities
- ► improvement in governance
- public perception management with a targeted focus on relatively more affected areas
- Since 'Police' and 'Public Order' are State subjects, the Central Government works to enhance the capacity of the State Governments to tackle the Maoist menace in a concerted manner.
- Naxals have to be differentiated from terrorists. A hardline approach that works against the terror outfits cannot be applied to Naxalism.
- The approach to deal with Naxalism can be understood by classifying them under 'Hard and Soft' approaches.
- While the 'Hard' approach involves the use of Force against violent elements, the 'Soft' approach involves a focus on bridging developmental gaps in Naxalism-affected areas.

Steps taken for Hard Approach

- Police Modernization Scheme and fortification of police stations in areas affected by Naxal movements. Central assistance in the training of State Police.
- National Policy and Action Plan 2015: a multidimensional strategy in the areas of development, security, upholding rights & entitlement of local communities, etc
- Special Infrastructure Fund Scheme to the States of Chhattisgarh, Jharkhand, Bihar, and Odisha to set up a Special Task Force to combat LWE.
- The Unlawful Activities (Prevention) Act, 1967 was amended recently to strengthen the punitive measures.
- Security Related Expenditure (SRE) Scheme: Under the scheme, the Central Government reimburses any expenditure related to LWE affected areas to the State Governments.
- SAMADHAN approach is need of the hour for 'Hard' approach:
 - ► S Smart Leadership
 - ► A Aggressive strategy
 - ▶ M Motivation and training
 - ► A Actionable intelligence
 - D Dashboard Based key performance indicators
 - H Harnessing technology

► **N** - No access to financing.

Steps taken for Soft Approach

A - Action plan for each theatre

- **Interaction:** Bridge the gaps between security forces and locals through personal interaction.
- Aspirational District Program: Monitoring of Aspirational districts in 35 LWE affected districts.
- Media Plan: Activities like Tribal Youth Exchange programs are organized and radio jingles, documentaries, pamphlet distribution, etc. are being conducted.
- Schemes & Policies: Various schemes like Roshni have been used to improve skill development.
 - Universal Service Obligation Fund supported the Scheme of Mobile Services to increase mobile connectivity.
 - Effective implementation of provisions of PESA, 1996 on priority.
 - Surrender and Rehabilitation policy for Naxalites in affected areas.
 - Facilities of residential schools to children (e.g. Choolo Aasman, Pota Cabins, Nanhe Parinde) as well as focus on sports infrastructure.
 - National Rural Employment Guarantee Programme (NREGA) is being implemented in 330 districts affected by Naxalism for demanddriven wage employment.

Drawbacks in the Present Strategy

- Inefficient Service Delivery: Naxal-affected areas remain deprived of basic services, justice delivery, and community participation among others.
- Lack of coordination among the states States have not done satisfactorily in joining hands for better synergy in their plans.
- Lack of coordination between State police and Central forces – Results in security voids which are exploited by the Naxals.
- Lack of streamlines way of **intelligence sharing** between states and regions.
- **Inability to maintain created infrastructure-** It hampers the trust of locals and disrupts channels of communication for security forces.
- Inability to curb sources of financing for Naxals
 Demonetisation also proved to be insufficient.
- **Inadequate use of Technology-** The use of drones, ground sensors, smart guns, AI, etc. has been inadequate in Naxal areas.



• WAY FORWARD

- **Good governance** Analyzing the drawbacks in the present strategy and developing a coherent national strategy to end the menace.
- **Dialogue** Between the Naxal group leaders, and the government officials help to work out a solution.
- **Employment generation** livelihood insecurities in the remote areas have left the people with the feeling of hopelessness, which drives them towards Naxalism
- Working on empowerment of weaker sections
 Socially and Economically weaker sections, the scheduled castes, and scheduled tribes still face

discrimination from the upper class making them easy targets for the Naxals.

ONCLUSION

Though the country has made significant success in containing Naxalism, its root cause has not been addressed yet. The current two-pronged strategy of the central and the state governments that use 'hard' and 'soft ' approaches simultaneously, will go a long way in solving this problem. Furthermore, lessons can be learned from previous success stories like the 'Operation Greyhound' of Andra Pradesh. This will help India in fighting one of the biggest Internal security challenges.

IS IT EVER OK TO JUMP AHEAD IN THE VACCINE LINE?

CONTEXT

In the beginning of this year, countries started the vaccination of their citizens. The vaccination drives were conducted according to the vulnerability of various groups of citizens. The first targeted were the frontline workers, medical staff, then people above 60 were vaccinated. Currently, India is in the process of vaccinating all

• BACKGROUND

- Various Indian states like Maharashtra and Odisha have reported the shortage of COVID -19 vaccines, as they have ramped up the vaccination drive.
- Due to this scarcity, many people who want the shots can't get them yet, either because they're not yet eligible, according to priorities set by their state, or because there aren't any available appointments.
- Thus, people have come up with different ways to get vaccinated as early as possible. This raises the concern where providing a vaccine to the most vulnerable becomes a difficult task.
- In this article we shall look into details of various ethical issues involved in how the country should procure vaccines and an **individual's decision** of getting vaccinated when there is a shortage of COVID-19 vaccines worldwide.

• ANALYSIS

Why COVID-19 Vaccine scarcity increased?

- Inability to meet Production targets:
 - Two vaccine producers in India have raised concerns about their ability to meet their production targets.
 - The largest of these, SII which produces Novavax and AstraZeneca vaccines - has warned of raw material shortages affecting production.
 - Its chief executive, Mr Poonawalla, attributed this to US export bans on specific items needed to make vaccines, such as specialised bags and filters.

• Hoarding by Rich Countries:

 When the pandemic began, rich countries went on a buying spree. Some have even called it "panic buying." This has led to scarcity of Vaccines in poor countries.

What is the underlying objective of vaccination drive?

- The objectives of vaccination are 2-fold.
 - One is the direct protection of the vaccinated individual against future infection and its associated health consequences.
 - The other is the indirect protection of the population at large by reducing overall viral transmission (herd immunity) and, thereby, the risk of infection, even for those who have not been vaccinated.

How Governments should react in this time of scarcity?

- For Wealthy countries, scarcity is a reality which they believe can be avoided by providing enough money.
- But scarcity also brings the question of 'Who should get the vaccine first'?
- Covid response has prioritized saving lives and thus a planned approach to providing vaccination was implemented throughout the World.
- But as countries take care of their own citizens, practices like hoarding have made many poor countries in dire need of Vaccines. This can be seen from current status, where many countries do not have even a single fully vaccinated person.
- The head of WHO has warned that the world faces a "catastrophic moral failure" because of unequal Covid vaccine policies. He said over 39 million vaccine doses had been given in 49 richer states but one poor nation had only 25 doses.
- Thus, countries while incorporating the values of equity, empathy and the idea of saving maximum lives, in their own countries should also incorporate these values at global level.
 - The WHO global vaccine sharing scheme COVAX, is a step in the right direction and should be supported.

 India has supplied 20 million doses under the scheme to low and middle income countries.

Ethical Issues in taking Vaccine when it's not your turn?

- First and foremost, it deprives the people who are in most need of the vaccine their right.
 - This is a scenario of Conflict of Interest, where personal interests become more important than those of the society.
 - Since vaccination decisions affect not only the individuals who get vaccinated, but also people around them in the community, vaccination decisions and policies are also ethical decisions.
 - ➤ From a utilitarian perspective, policies should be in place to ensure that the vaccines are going to those who need them most to allow the vaccine to do the most good.
 - This means people who cannot pay should still be allowed to get the vaccine if they are at-risk. This goes against the principles of the freemarket.
- What should one do, if Vaccines are getting wasted?
 - ► In such a situation, a person should take the vaccine even if s/he is not eligible.
 - But more ethical would be to direct eligible and more vulnerable people in the neighbourhood to take the vaccination.

- Should one travel to another country, where they are eligible for vaccination, to take vaccines?
 - Each country procures vaccines based on the number of people it is planning to vaccinate.
 - Such practices can deprive people of that country, their right to get vaccinated. Thus, the practice becomes unethical.
- Should one get vaccinated if he/she is eligible but is otherwise healthy and fit?
 - Countries plan their vaccination drive not only for the benefits of individuals who are getting vaccinated, but also for a greater public good.
 - Even if one is healthy and has less chances of severe illness due to Covid, he/she should follow government protocol and get vaccinated.
 - In this way, they are not only making themselves safer, but also helping the community around them.

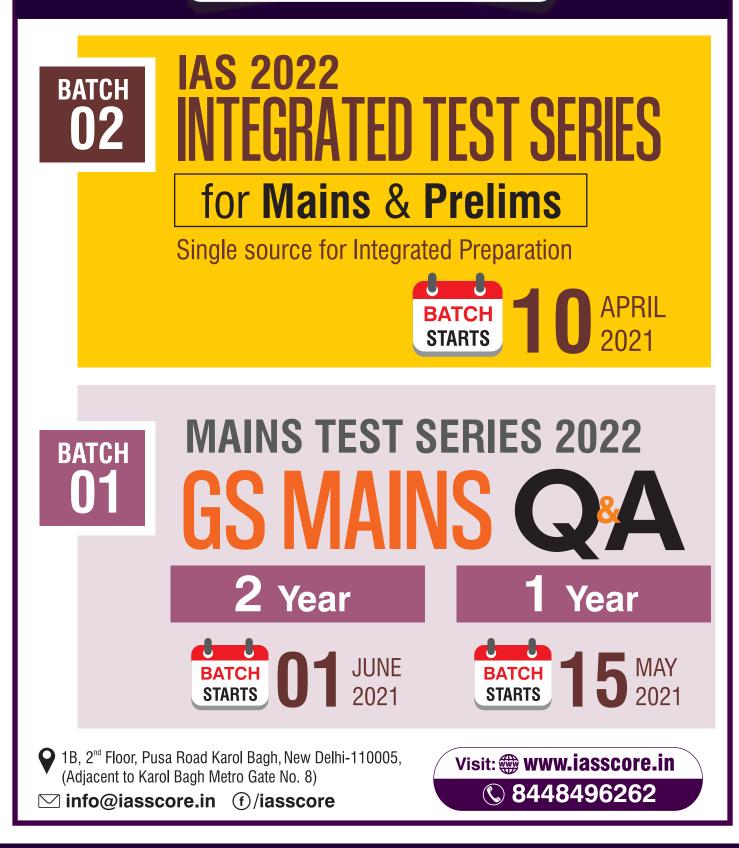
ONCLUSION

COVID-19 pandemic is still ongoing and the death toll due to the disease is still rising. In such a scenario, distribution of vaccines to the most vulnerable, which can save maximum lives is need of the hour. Thus, both at national and individual level, following the ethically right path will help to control the pandemic in a swift and efficient manner, which will be beneficial to all.



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AI-DRIVEN RESEARCH PORTAL FOR SUPREME COURT IS LAUNCHED

• **CONTEXT:** The Supreme Court unveiled its Artificial Intelligence (AI) portal SUPACE which is designed to make research easier for judges and for easing their workload.

• ABOUT: What is SUPACE?

- **Smart tool**: Supreme Court Portal for Assistance in Court's Efficiency (SUPACE), is an AI tool that helps in collecting the relevant facts and laws to make them available to judges.
- **Information provider**: The portal is not to make judgments rather search and process the information available to the judges for making them good decisions.
- **Efficient**: It is aimed to assist judges in legal research by making it more efficient, methodical, and systematic.
- Reduction in delays: It will help in reducing the delays and pendency of cases.
- **First of its Kind:** The initiative is the first of its kind in the world to enhance the efficacy of judges and the judiciary.
- **Threat**: The automated decision-making by some of the AI systems abroad is one of the threats in influencing judicial orders.
 - The loss of certain posts after its introduction is also being considered a concern.
- **Digitally sound:** This is one more effort to make the court procedure digital in the line with the e-court project.
- **Committee:** The project is launched based on the recommendation of the AI Committee formed in 2019 which was headed by Justice L Nageswara Rao.

Other IT projects in Judiciary

National Policy and Action Plan for Implementation of ICT

• The E-Committee headed by RC Lahoti was formed in 2004 and formulated the National Policy and Action Plan for Implementation of ICT in the Indian Judiciary in August 2005.

e- Court Project

- The e-Courts project was conceptualized based on the "National Policy and Action Plan for Implementation of Information and Communication Technology (ICT) in the Indian Judiciary in 2005.
- It is a Pan-India mission that aims to digitalize the courts.
- The project is implemented through the Department of Justice, Ministry of Law, and Justice.
- Towards taking initiation in this direction the e-Courts National portal was also launched in 2013.
 - The portal provides Case Status, daily Cause-list, Cases Filed and Cases Registered through the Case information System (CIS) Software.

The main objectives of the e-Court Project are as follows:

- To provide efficient & time-bound citizen-centric service delivery.
- To develop, install & implement decision support systems in courts.
- To automate the processes to provide transparency of Information access to its stakeholders.



• To enhance judicial productivity both qualitatively & quantitatively, to make the justice delivery system affordable, accessible, cost effective & transparent.

FINETUNING OF INFLATION-FORECASTING MODEL

ONTEXT: India's central bank has revised its inflation-forecasting model to better capture how fiscal and monetary policy interact with real-economy elements just after days the RBI won approval from the government to retain the inflation target in between 2%-6% range for the next five years.

ABOUT: The new Model orQuarterly Projection Model 2.0

- The Quarterly Projection Model 2.0 is an inflation forecasting model.
- The new framework is a forward-looking, open economy, calibrated, new-Keynesian gap model.
- The previous version was often criticized for over-estimating upside risks to inflation.
- Under the new model the adjustments incorporate fiscal-monetary dynamics, which include
 - India's unique and often chaotic fuel pricing regime
 - exchange-rate fluctuations and their impact on balance of payments

The new model is differentiated into three blocks:

- **First or fiscal block**: It decomposes the government's primary deficit into structural and cyclical components.
- Second, or fuel block: Ittakes into account India's complex system of pricing.
- Third or balance of payments block: It recognizes the costs associated with spurts in volatility in the exchange rate.

Inflation

- It refers to the rise in the prices of most goods and services of daily or common use, such as food, clothing, housing, recreation, transport, consumer staples, etc.
- Inflation measures the average price change in a basket of commodities and services over time.

GLOBAL MINIMUM CORPORATE TAX RATE

 CONTEXT: America's treasury secretary Janet Yellen called on other countries to join Washington in setting a global minimum corporate tax rate for the Biden administration's released plan to invest \$2 trillion+ to revamp infra and boost clean energy products.

• ABOUT: Global minimum corporate tax rate



• **Non-binding**: It is a nonbinding global minimum corporate tax.

- **Recommended**: A UN Panel, which is the High-Level Panel on International Financial Accountability, Transparency, and Integrity for Achieving the 2030 Agenda (FACTI), recommended a **global minimum corporate tax** of between 20% and 30%.
- **Reduction in tax competition**: This corporate tax could help in reducing the tax competition for the US and other nations.
 - It is aimed to provide a level playing field and to create equitable growth.
 - It will help in the reduction of the race of taxes and corporate tax base erosion.
- **First of its kind**: This is the first attempt of its kind attempted by the US as the world has not agreed to set a minimum level of the corporate tax rate.

Significance for America

- **Hike in tax rates**: The plan seeks to increase the US corporate tax rate to 28 percent from 21 percent. The ex-US President had reduced the corporate tax rates from 35 percent to 21 percent.
- **Revitalization**: It aims to revitalize the transportation infrastructure, water systems with other goals.
 - An increase in the tax rate and other measures to prevent the offshoring of profits will fund it.
- More cooperation: It will support integration instead of isolationism.
- Tax evasion: The plan will stop firms from shifting profits to tax haven countries.
- **Stability:**The bill aims to stabilize tax systems to raise enough revenue to invest in public welfare.

Expected Negative impact on American Economy

- If not agreed as a global minimum rate, the US rates would be higher than other major economies which will make US address unattractive for firms.
- This would make foreign businesses overseas more profitable than US businesses.
- In G7 countries, the average rate is 24 percent and even lower in some countries.

Other similar attempts

- U.S. is also trying to push for a multilateral agreement for digital taxation at OECD.
- The Organization for Economic Cooperation and Development (OECD) is also working on a fresh set of cross-border tax rules.
 - > These rules would also include a global minimum tax rate for MNCs.

Importance for other countries

- The International Monetary Fund has long favored the adoption of a global minimum tax on corporate profits as it would help in the reduction of current disparities in the national corporate tax rate.
- It would largely help in reducing tax shifting and tax avoidance.
- It would reduce the tax base on which governments could collect revenues for funding economic and social spending.



PRE-PACK UNDER INSOLVENCY AND BANKRUPTCY CODE

CONTEXT: The central government has promulgated an ordinance that allows the pre-packs to be used as an insolvency resolution mechanism for Micro, Small and Medium Enterprises (MSMEs) having defaults up to Rs 1 crore under the Insolvency and Bankruptcy Code.

• **ABOUT:** What are pre-packs?

- A pre-pack is the **process of debt resolution** of a distressed company by an agreement between secured creditors and investors instead of a public bidding process.
- Under this resolution, the company's **business is negotiated with a buyer before the appointment of an insolvency professional.**
- Pre-pack is a **corporate rescue method** with both informal (out-of-court) and formal (judicial) insolvency proceedings.
- It is a **hybrid framework**, as it empowers stakeholders to resolve the debt issue with the minimum assistance of the State.
- Under this system, the financial creditors seek approval from the National Company Law Tribunal (NCLT) regarding the resolution plan.
 - NCLT may accept or reject any application
- The plan has to be approved by a **minimum of 66 percent of unrelated financial creditors** to the corporate is required before a plan is sent to NCLT.
- The pre-pack mechanism **permits the Swiss challenge** for any resolution plans which proved less than full recovery of dues for operational creditors.
- It will be implemented in parallel to the Corporate Insolvency Resolution Process (CIRP).
- This system of insolvency proceedings is a popular mechanism for insolvency resolution in the **UK and Europe.**

Swiss challenge mechanism

- Under this mechanism, **any third party will be permitted** to submit the resolution plan for the distressed company.
 - The original applicant would have to either match the improved resolution plan or forego the investment.

What was the earlier process?

- Corporate Insolvency Resolution Process (CIRP) is a **recovery mechanism** for creditors under the IBC, 2016.
- If a corporation becomes insolvent, in this case, a financial creditor, an operational creditor, or the corporate itself may initiate CIRP.

Benefits of pre-packs over the Corporate Insolvency Resolution Process (CIRP)

• CIRP is said to be a time taking resolution process. In the majority of the cases the threshold of 270-days has been crossed.



• The prolonged litigations by promoters and potential bidders are said to be the key reason behind the delays.

- On the other hand, the limit for a pre-pack is 120 days with 90 days available to the stakeholder in bringing the resolution plan to the NCLT.
- Under the CIRP, a resolution professional takes control of the debtor. On the other hand, the in case of pre-pack the management retains control.

What is the need for the pre-pack plan?

- Due to the Covid-19 pandemic, the government had suspended the insolvency act. Now as the one-year suspension had come to an end, the government has initiated a pre-pack solution for the debt resolution.
- The pre-packs will provide MSMEs an opportunity to restructure their liability and to start afresh.
- It will incorporate the consensual restructuring of debt with lenders.
- It also ensures adequate protection by errant promoters.

Insolvency and Bankruptcy Code, 2016 (IBC)

 It is a bankruptcy law of India that seeks to create a single law for insolvency and bankruptcy.

Key Features:

Insolvency Resolution

- The Code outlines separate insolvency resolution processes for individuals, companies, and partnership firms.
- > The process may be initiated by either the debtor or the creditors.
- Time limit-
 - For companies: 180 days, which may be extended by 90 days
 - For start-ups, small companies, and other companies (with asset less than Rs. 1 crore): 90 days of initiation of request which may be extended by 45 days

Insolvency regulator

- The Insolvency and Bankruptcy Board of India will oversee the insolvency proceedings in the country.
- The Board will have 10 members with representatives from the Ministries of Finance and Law, and the Reserve Bank of India.

Insolvency professionals

> The licensed professionals will manage the insolvency process.

Adjudicator:

- ► National Company Law Tribunal for Companies and Limited Liability Partnership firms.
- > Debt Recovery Tribunal for individuals and partnerships.



CLIMATE CHANGE SHRINKS MARINE LIFE RICHNESS NEAR THE EQUATOR

OONTEXT: Recent research finds that a huge decline in biodiversity richness is observed near the equator.

• ABOUT: Key findings of the report

- The study finds that about half of the open water species have declined in the last 40 years up to 2010 in tropical marine zones worldwide.
- Reasons behind the decline
- The rising sea surface temperature is expected to be the reason behind the decline which has risen nearly 0.2°C in the tropics.
- Climate change is said to either plateau or declines the fish species at or above 20°C. This will impact the marine species diversity distribution.

How the Ocean Temperature rises and impacts?

- The ocean absorbs an excessive amount of greenhouse gas emissions which leads to the rise in ocean temperatures.
 - The Fifth Assessment Report published by the Intergovernmental Panel on Climate Change (IPCC) in 2013 had revealed that the ocean absorbed more than 93% of the excess heat from greenhouse gas emissions since the 1970s.
- The ocean also absorbs a higher amount of CO2, which leads to ocean acidification.
- Ocean warming causes de-oxygenation which is a reduction in the amount of dissolved oxygen
- It also causes the rise in sea level which results in thermal expansion of seawater.
- The rise in CO2 causes acidification.
- Acidification and ocean warming, in turn, impacts marine species and ecosystems.

Impact of rising temperature

- The study shows a strong correlation between species decline and rise in temperature.
- More changes are expected to be seen in Northern Hemisphere with more extent of warm water.
- The migration of open-water species is also seen due to the temperature rise. Some species tend to migrate to cooler waters.
- It is going to impact the fishing and tourism industries that rely on them.

Varied impact

- A different level of impact is observed on the open water and deep-sea species.
 - The temperature rise is going to impact the coral reef as well but there is a concern regarding its mobility. In this case, the coral reefs are going to impact more extensively.



• **Open water species:** Fishes, Whales, other free-floating marine species of mollusk and Echinodermata comes under this.

• Deep-sea species: Mollusks, sponges, and Coral reefs come under this category.

How it can be mitigated?

- It could be achieved by the targets set by achieving the targets of the Paris Agreement on climate change and by **limiting the global average temperature increase to well below 2°C above pre-industrial levels.**
- The temperature rise can be a cop with the **establishing marine protected areas and by putting the adaptive measures.**
- **Management of protected areas** can help in conserving and protecting the ecologically and biologically significant marine habitats.
- **Regulation of human activities** in sensitive and protected areas can be managed to protect the species richness.
- More investments in scientific research in measuring and monitoring ocean warming can help in the mitigation.

CLIMATE MAPPING CAN POINT TO DANGER SPOTS OF AFRICA'S CYCADS

OONTEXT: Cycads which are the world's oldest seed-producing plants are facing extinction.

• ABOUT : African Cycad

- Taxa: It belongs to the most prominent taxa of Cycad.
- Genus: It comes under the genus *Encephalartos*.
- Endemism: Cycad is endemic to Africa.
- **Global Hotspot:** Africa is considered home to a variety of cycad species and **South Africa is** considered as a global hotspot for cycad diversity.
- **Conservation Status:** It is categorized under the "**critically endangered**" category by the International Union for Conservation of Nature.
- **Threat:**The biggest threat to their survival is poaching, mainly cutting of the wild old trees.
- Use: They are used in traditional medicine markets and as ornamental plants in gardens.

Why they are threatened with extinction?

- Alien Species: The wild cycads are facing threat by an invasive alien species, *Aulacaspis yasumatsui* that has entered South Africa.
 - *Aulacaspis yasumatsui* is a scale insect which is commonly known as the Cycas Aulacaspis Scale.
 - It has the potential to kill cycad plants within a few months of infestation.



 Climate plays an important role in influencing the spread and establishment of invasive alien species in new habitats.

Invasive Species

- An **invasive species** is a living organism that is not native to an ecosystem and can causes harm.
- It can include amphibians, plants, insects, fish, fungus, bacteria, or even an organism's seeds or eggs.
- They can harm the environment, economy, or even human health.

How it is being tackled?

- CLIMEX, a bio-climatic software, is used to map the areas which have favorable climatic conditions for the establishment of the pest in Africa.
- The software uses historical climate data sets and future climate scenarios which are based on the Intergovernmental Panel on Climate Change recommendations.
 - It collects information about temperature, relative humidity, phenology, and soil moisture that helps in the establishment of the Cycas Aulacaspis Scale in a novel range.
 - These values are fed to the software, which subsequently predicts the potential hot spots for Cycas Aulacaspis Scale establishment.

How the software is helpful?

 Integrated Pest Management approaches which include cultural, biological as well as chemical practices can be applied in potential hotspots to protect the cycads.

IUCN Red List

- IUCN red list was established in 1964.
- The IUCN Red List Categories species based on risks of global extinction.
- It divides species into nine categories: Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild, and Extinct.
 - Extinct (EX): It is said to be when it is beyond reasonable doubt that the species is no longer extant.
 - > Extinct in the wild (EW) When species survives only in captivity.
 - Critically endangered (CR) When species are in a particular and extremely critical state.
 - Endangered (EN) Species face a very high risk of extinction in the wild, meet any of criteria A to E for Endangered.
 - > Vulnerable (VU) It meets one of the 5 red list criteria.
 - Near threatened (NT) Species are close to being at high risk of extinction shortly.
 - Least concern (LC) It is unlikely to become extinct shortly.



THIRD OF ANTARCTIC ICE SHELVES ' IS AT RISK OF COLLAPSE AMID 4C GLOBAL HEATING'

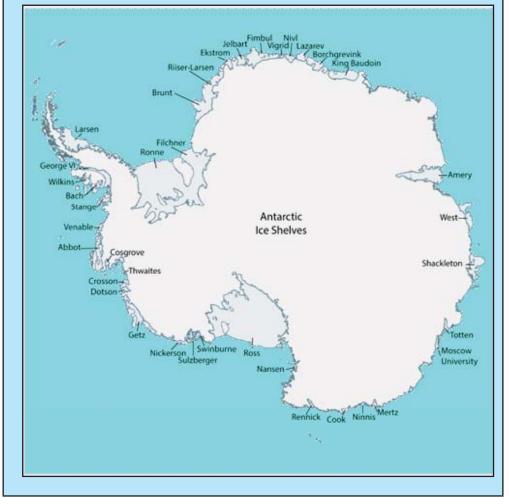
CONTEXT: More than a third of the vast floating platforms of ice that surrounds Antarctica is at risk of collapse and releasing a huge amount of water into the sea if global temperatures reach 4C above pre-industrial levels.

• ABOUT THE STUDY:

- The Researchers said that the limiting the temperature rise to 2C could reduce the risk by half.
- The study suggests that around 34% of the Antarctic ice shelves could be collapsed due to the rise in temperature by 4C.

Antarctica Ice Shelves

- Ice shelves are permanent floating sheets of ice which is connected to a landmass.
- It mostly surrounds the coasts of Antarctica.
- Ice shelves are important buffer that prevents glaciers on land from flowing freely into the ocean and contributing to sea level rise.



• The collapse will break the ice shelves and will allow the unimaginable amounts of water from glaciers to pour into the sea.



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- The new study uses the latest modelling techniques to provide more precise projections and fill the gap in earlier methods.
- This study also highlighted the importance of limiting the global temperature increases as set out in the Paris Climate Agreement that promotes a global framework to avoid dangerous climate change by limiting theglobal warming to less than 2C above preindustrial levels.
- With the help of study researchers identified the Larsen C, the largest remaining ice shelf, as at higher risk in a warmer climate situation.
- The other shelves facing the threat includes Shackleton, Pine Island, and Wilkins.

SPICES BOARD SIGNED A DEAL WITH UNDP TO DEVELOP A BLOCKCHAIN-POWERED TRACEABILITY INTERFACE

CONTEXT: The Spices Board India has signed anMoU with UNDP India's Accelerator Lab to build a blockchain-based traceability interface for Indian spices for enhancing the transparency in the supply chain and trade.

ABOUT: Blockchain-powered traceability interface

- It is a decentralized process of recording transactions in an open and shared electronic ledger.
- The interface is an easy and transparentdata management system across a complex network of farmers, brokers, distributors, processors, retailers, regulators, and consumers.
- UNDP and Spices Board India are also trying to integrating the Blockchain Traceability Interface with the e-spice Bazaar portal.

Spice Board of India

- Spices Board comes under the Ministry of Commerce and Industry, Government of India.
 - It was founded in 1987.
- It is a flagship organization for the development and worldwide promotion of Indian spices.
- The Board is an international link between the Indian importers and the exporters abroad.

Significance: It will help in simplifying the supply chain.

- It will allow farmers to access the information, which further makes the entire supply chain more efficient and equitable.
- This traceability interface is expected to boost consumer confidence and facilitate the sourcing of spices for exports as well as for local value use.
- The technology will also help in rebuilding the pandemic affected supply chains.



Potential Blockchain Technology Benefits for Agriculture

- Blockchain technology offers a reliable approach to tracing transactions between anonymous participants.
 - > It can reduce fraud and malfunctions by quick detection.
- It can be helpful for agricultural insurance, smart farming, food supply chain, and transactions of agricultural products.

STUDY ANIMALS THROUGH DNA FROM SURROUNDING AIR

• CONTEXT:

The eDNA monitoring is a very common tool among researchers and regulatory agencies and the sampling of eDNA can help in determining the presence of organisms in a particular environment.

- DNA is the genetic material present in the cells of most living beings and animals and plants shed cells through the interaction with the environment.
 - Over the time, environmental elements degrade the cells and expel the DNA.
 - The size of DNA is quite small and is resilient that it can persist in the environment for months and years.
 - Scientists call these DNA as residual or **environmental DNA (eDNA)**.

How the eDNA study is conducted?

The PCR is used to amplify DNA from the mitochondria of the trapped cells.

PCR or the polymerase chain reaction

• It is a chemical reaction that identifies the presence of specific DNA in a sample and rapidly makes multiple copies or amplifies its presence.

GenBank

- It is a repository of all known genetic sequences.
- The amplified DNA is then sequenced to have the genetic sequence.
- The sequenced DNA is compared with the sequences with those stored in an international database called GenBank to look for matches.

Significance of Study

- **Presence study:** Sampling eDNA can help in determining the presence of organisms in a particular environment.
- Varied study: eDNA has allowed scientists
 - to surveil invasive species
 - to study the spread of fungi and pollen in geographical regions
 - to monitor aquatic nvironments



US NAVY EXERCISE IN INDIA'S EXCLUSIVE ECONOMIC ZONE WITHOUT PRIOR CONSENT

CONTEXT: In an unexpected move, the US Navy conducted a freedom of navigation patrol in Indian waters without India's prior consent,

• ABOUT: US patrolling

- The press release issued by the Commander of the US seventh fleet states that US asserted navigational rights and freedoms approximately 130 nautical miles west of the Lakshadweep Islands which lies inside India's exclusive economic zone [EEZ].
- US declared that patrolling in this without requesting India's prior consent is consistent with international law.
- The move is declared as intended to challenge to India's "excessive maritime claims".
- This is also added that it upheld the rights, freedoms, and lawful uses of the sea recognized under the international law.
- The unusual thing in the current patrolling was that this was the first time in recent that the US navy has publicly acknowledged that a military ship has entered India's EEZ.

Exclusive Economic Zone

- An exclusive economic zone (EEZ) is prescribed by the 1982 United Nations Convention on the Law of the Sea.
- It is considered as an area of the sea in which a sovereign state has special rights regarding the exploration and use of marine resources, including energy production from water and wind.
- It stretches from the baseline out to 200 nautical milesfrom the coast of the state in question.
- It is also referred to as a maritime continental margin.

The reason of ambiguity

- The differences began during the drafting of the treaty over the interpretation of Article 58(i) of the UN Convention of the Law of the Sea (UNCLOS) which two nations interpret in their own ways.
- India and the US have fundamental differences in coastal states' rights for stopping the foreign military ships to conduct military activities within their EEZ.
- **India** has ratified the UN Convention of the Law of the Sea (UNCLOS). However, the US has not ratified UNCLOS.

Article 58 (i), says that In the exclusive economic zone, all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention.



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- Maritimes nations such as US have long interpreted it as that the phrase "other internationally lawful uses of the sea" means that they are free to enjoy the freedom to operate in the EEZ.
 - They also cite Article 87 which lists freedoms in the high seas, including freedom of navigation, implying that this applies to the EEZ.

UNCLOS

- The United Nations Convention on the Law of the Sea (UNCLOS) ia also called the Law of the Sea Convention.
 - ▶ The Convention was concluded in 1982.

- It is an international agreement that resulted from the third United Nations Conference on the Law of the Sea (UNCLOS III).
- The Law of the Sea Convention defines the rights and responsibilities of nations with respect to their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources.





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