

# GES REPORTER

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## **Intense heat**

### **How are heatwaves defined?**

- A heatwave is declared when the maximum temperature is over 40°C and at least 4.5 notches above normal.
- A severe heatwave is declared if the departure from normal temperature is more than 6.4 degrees, according to the IMD.
- Based on absolute recorded temperatures, a heatwave is declared when an area logs a maximum temperature of 45°C.
- A severe heatwave is declared if the maximum temperature crosses 47 degrees.

### **Is climate change responsible?**

- The heat-trapping consequences of global warming imply that climate extremes such as heatwaves are expected to rise in frequency.
- Instances of extreme rainfall, as well as longer rainless spells are expected, according to assessments by the Intergovernmental Panel on Climate Change.
- The main reason for the scorching heat in the northern parts of the country is lack of rainfall.
- Usually, periods of high temperature are punctuated by periodic episodes

of rain but this was largely absent during March and April.

- Ironically, April also saw maximum instances of extreme rainfall since 2018 though it was concentrated in the south and north-eastern India.
- The rain-bearing western disturbances originate because of temperature gradients between the northernmost parts of the globe and the latitudes passing through West Asia.
- Weaker gradients mean weaker rains.
- This March and April, cooler than normal conditions in the Pacific Ocean failed to aid rainfall in north India.

### **What impact do heatwaves have over India?**

- Research through the year's shows that the number of heatwave days in India is increasing every decade.
- From 413 in 1981-90 to 575 in 2001-10 and 600 in 2011-20, the number of days that see extremely hot days is persistently increasing at 103 weather stations. Some parts along eastern India, such as Andhra Pradesh, Telangana and Odisha, also register higher humidity along with high temperatures, leading to the rise in a condition called 'wet bulb' temperature, that at its mildest can

cause extreme discomfort and at its worst cause dehydration and death.

- Heatwaves have killed more than 17,000 people in 50 years in India, according to a research study by IMD scientists.

## **THE HINDU**

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### **Why are electric vehicles catching fire?**

- Why is the world poised to transition to electric vehicles?
- The growing concern over climate change has led to global efforts to electrify the transportation sector.
- In parallel, cost of Li-ion (Lithium-ion) battery technology has decreased by a staggering order of magnitude in the past decade.
- Li-ion batteries are complex devices requiring a level of sophistication that can take years to perfect.
- Hurrying the development of this complex technology without careful safeguards can lead to increasing safety incidents, as evidenced recently on Indian roads.

## **THE HINDU**

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### **What goes into a Li-ion battery?**

- Every Li-ion battery consists of three active components: the anode, typically graphite; the cathode, typically based on a nickel, cobalt, and manganese-based oxide; and an electrolyte, typically a salt of lithium in an inorganic solvent.
- Battery manufacturing is a complex operation involving forming sheets of the anode and cathode and assembling them into a sandwich structure held apart by a thin separator.
- Separators, about 15 microns in thickness about a fifth of the thickness of the human hair perform the critical function of preventing the anode and cathode from shorting.
- Accidental shorting of the electrodes is a known cause of fires in Li-ion cells.
- It is important that the various layers are assembled with high precision with tight tolerances maintained throughout the manufacturing process.
- Safety features, such as thermal switches that turn off if the battery overheats, are added as the sandwich is packaged into a battery cell.
- Battery cells are assembled into modules and then further assembled into packs. Li-ion batteries require

tight control on the state of charge and the temperature of operation to enhance safety and increase usable life, achieved by adding multiple sensors.

- Packs are designed to ensure uniform temperature profile with minimal thermal variation during operation.
- Battery packs are integrated into the vehicle in unique form factors depending on the design of the vehicle.
- The location of the battery should protect it from external penetration, ensure passenger safety while taking into consideration the overall weight distribution.
- Close interaction between vehicle manufacturers and battery manufacturers is essential so that the whole is greater than the sum of the parts.
- There are multiple trade-offs in this complex ecosystem: engineering higher safety often results in higher costs and lower driving range.
- In this competitive landscape where companies are vying for market share, a race to the bottom can compromise safety.
- The energy density of petrol is five hundred times that of a typical Li-ion battery, therefore safety should be manageable if robust controls are in place.
- However, batteries do store energy in a small package and if the energy is released in an uncontrolled fashion, the thermal event can be significant.
- Battery fires, like other fires, occur due to the convergence of three parts of the “fire triangle”: heat, oxygen, and fuel.
- If an adverse event such as a short circuit occurs in the battery, the internal temperature can raise as the anode and cathode release their energy through the short.
- This, in turn, can lead to a series of reactions from the battery materials, especially the cathode, that release heat in an uncontrolled manner, along with oxygen.
- Engineering safety requires commitment from all parts of the battery supply chain and tight integration between vehicle companies and battery companies.
- Further, regulators play an important role, providing the testing and certification needed to ensure that technology innovations perform at the level that is promised.
- Li-ion batteries are not forgiving of shoddy engineering and approaches that rely on cutting corners.

- Companies with tightly controlled manufacturing with years of experience can maintain the number of adverse safety incidents to a minimum.

## **THE HINDU**

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### **Crops and CRISPR Cas9**

- Better crops
- Plant scientists are turning to strategies adapted from the gene-editing tool CRISPR-Cas9 to improve the yield, robustness and consumer appeal of commercial cereals, fruit and vegetables.
- Sweeter strawberries are a nice start, but the same capabilities are being harnessed to generate crops with greater disease resistance and higher nutritional content.

## **THE HINDU**

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### **What is alpha gal?**

#### **Allergy-free**

- A company that genetically modifies pigs to create organs for humans has been sending free packages of ground pork, steaks and chops to people allergic to meat.
- The company removes the sugar molecule alpha-gal, which causes the human immune system to reject

pig organs and causes a red-meat allergy in people.

### **What is alpha-gal?**

- Alpha-gal (galactose- $\alpha$ -1,3-galactose) is a sugar molecule found in most mammals.
- Alpha-gal is not found in fish, reptiles, birds, or people.
- Alpha-gal can be found in meat (pork, beef, rabbit, lamb, venison, etc.) and products made from mammals (including gelatine, cow's milk, and milk products).
- What is alpha-gal syndrome (AGS)?
- Alpha-gal syndrome (AGS) (also called alpha-gal allergy, red meat allergy, or tick bite meat allergy) is a serious, potentially life-threatening allergic reaction. AGS is not caused by an infection.
- AGS symptoms occur after people eat red meat or are exposed to other products containing alpha-gal.

## **THE HINDU**

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### **Research ethics**

- China's powerful State Council is calling on research institutions to expand and improve their ethics training.
- The directive, one of several detailed in a comprehensive ethics statement, is intended to address

gaps in oversight exposed when Chinese researcher, He Jiankui, shocked the world by creating the first babies with edited genomes in 2018.

## **THE HINDU**

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### **RM EMF and brain tumour**

- The latest U.K. Million Women Study on cellular telephone use and the risk of brain tumours published online on March 29, 2021 in Journal of the National Institute of Cancer confirms the accumulating evidence that cellular telephone use under usual conditions does not increase brain tumour incidence.
- The topic has added interest now because phone companies plan to launch 5G technologies soon.
- When we keep cell phones very close to our head, the RFEMF emitted by cell phones penetrate several centimetres into our head;
- The energy gets absorbed in the tissues in the temporal and parietal lobes of the brain.
- The well-established biological effect of RF-EMF on tissue is heating.
- “Radiofrequency Electromagnetic Fields” (RF EMFs) is the term used to describe the part of the electromagnetic spectrum

comprising the frequency range from 100 kHz to 300 GHz

- When researchers developed limits for human exposure to RF-EMF for cellular telephones, the prime consideration was to prevent any substantial heating that could lead to adverse health effect.

## **THE HINDU**

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### **Effects of RF-EMF**

- There were legitimate concerns that there may be adverse biological effects from RF-EMF exposure below those limits, possibly caused through mechanisms other than heat.
- Researchers added a safety factor of fifty to take care of such unknown mechanisms.

## **THE HINDU**

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### **Animal as virus reservoir**

- The role of “animal reservoirs” in the spread of COVID-19 is still being studied but evidence of zoonosis, or the virus jumping from animals to humans, is growing and scientists are concerned that this new frontier could potentially spawn dangerous, and difficult to monitor mutants.
- Some experts supported the theory that the highly mutated Omicron

variant, which caused a deluge of cases globally, including India, emerged from animals, potentially rodents, rather than an immune-compromised human.

- “As the virus multiplies in infected hosts, it can mutate slightly, and the worry is that over time, minor genomic tweaks in hundreds or thousands, if not millions, of animals, could eventually add up to changes that make the virus more contagious or deadlier in people, or able to evade treatments and vaccines.

## **THE HINDU**

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### **Climate change and risk of new infections**

- Climate change will result in thousands of new viruses spread among animal species by 2070 and that is likely to increase the risk of emerging infectious diseases jumping from animals to humans, according to a new study.
- This is especially true for Africa and Asia, continents that have been hotspots for deadly disease spread from humans to animals or vice versa over the last several decades, including the flu, HIV, Ebola and COVID-19

- Researchers, who published their findings on April 28 in the journal Nature, used a model to examine how over 3,000 mammal species might migrate and share viruses over the next 50 years if the world warms by 2°C, which recent research shows is possible.
- They found that cross-species virus spread will happen over 4,000 times among mammals alone. Birds and marine animals were not included in this study.
- Researchers said that not all viruses will spread to humans or become pandemic like the scale of the coronavirus but the number of cross species viruses increases the risk of spread to humans.

## **THE HINDU**

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## Funding Indian science

- India's R&D expenditure. With very little participation from the private sector in the country that includes some of the richest by global standards, curiosity-driven basic research in India is primarily sustained by direct funding from the government.
- Still, it remains static in India and hovers between a paltry 0.6 to 0.8% of GDP over a decade, way below the United States, China, Japan, the European Union countries and South Korea.
- While India's global R&D expenditure remains static at 1-3% of the global total, the U.S. and China accounted for 25% and 23%, respectively.
- The World Bank statistics indicate that India had 255 researchers per million people in 2017 a minuscule fraction for its size and population, in contrast to 8,342 per million in Israel, 7,597 in Sweden and 7,498 in South Korea. Compared to 111 in the U.S. and 423 in China, India has only 15 researchers per 1,00,000 population.
- Much of the total of the funding available goes to DRDO, Department of Space and Atomic Energy, leaving only 30 to 40% for agencies such as Indian Council of Agricultural Research (ICAR), Council of Scientific and Industrial Research (CSIR), Department of Science and Technology (DST), Department of Biotechnology (DBT), Ministry of Earth Sciences (MoES) and Indian Council of Medical Research (ICMR);
- Probably realising this demand from the new generation of researchers from the universities, the 2021-22 budget offered ₹10,000 crore (\$1.37 billion) every year starting from 2021, over the next five years, for a new funding agency called the National Research Foundation (NRF).
- This agency is expected to boost university science research, as well as the work in social sciences.
- "The NRF will provide a reliable base of merit-based but equitable peer-reviewed research funding, helping to develop a culture of research in the country through suitable incentives for and recognition of outstanding research, and by undertaking major initiatives to seed and grow research at state universities and other public institutions where research capability is currently limited"

**THE HINDU**

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## The NRF's importance

- Despite the announcement of the NRF and a huge fund infusion in the science budget, the 2021 budget speech had also expressed the intention of investing about ₹4,000 crore over five years for deep-ocean research and biodiversity conservation; and promised to four centres for virological research and a commitment to developing hydrogen energy.
- Planned to be an autonomous body and therefore less bureaucratic, the NRF was expected to bring thousands of colleges and universities under its ambit.
- To unleash the fullest potential of Indian science, a vibrant and responsive financial system is required.
- Such a system should be autonomous and more participatory, and less bureaucratic a problem also compounded by the fact that the finance person is made more accountable to the ministry rather than the secretary of the department.
- India cannot aspire to be a global leader in scientific research if enough funds are not injected into basic research by committing to

raise the R&D spending to at least 1% of the GDP.

- It is also important for the private sector to chip in. But for that to happen, the government should incentivise the private players by giving them tax breaks, etc.
- The promise to set up NRF, independent of political interference, and the related financial commitment needs to be realised.
- Another option is to upgrade the SERB (Science Engineering Research Board) to play the role assigned to the NRF.

## THE HINDU

### Invigorating AYUSH industry

- The global market for herbal medicine was valued at \$657.5 billion in 2020.
- It is expected to grow to \$746.9 billion in 2022

### The NAM scheme

- In India, the National Ayush Mission (NAM) was launched in 2014 by the Department of Ayush, Ministry of Health and Family Welfare, to promote Ayush systems and address the needs of the sector in a comprehensive way.

- Providing cost-effective services, strengthening educational systems, quality control of drugs and sustainable availability of raw materials are the main objectives of NAM.
- The industry is projected to reach \$23.3 billion in 2022, according to a Research and Information System for Developing Countries (RIS), 2021, report.
- The Indian herbal medicine market is worth \$18.1 billion.
- The Indian Ayush sector has grown by 17% between 2014 and 2020. Related segments such as plant derivatives grew by 21%, plant extracts by 14.7%, and herbal plants by 14.3% during the same period.
- Under the 'Medicinal Plants' component of the NAM scheme (2015–16 to 2020–21), the cultivation of prioritised medicinal plants in identified clusters/zones is being supported.
- Cultivation of plants on farmer's land, establishment of nurseries with backward linkages, post-harvest management with forward linkages, and primary processing, marketing, etc., are all covered under the scheme.
- For the cultivation of plants, subsidies at 30%, 50% and 75% of the cultivation cost for 140 medicinal plants are being provided.
- The Ministry of Finance has also announced a ₹4000-crore package under the Aatmanirbhar Bharat Abhiyaan for the promotion of herbal cultivation. There is no doubt about the potential of the sector and the above measures will surely help.
- However, the Ayush sector requires a multi-dimensional thrust, ranging from initiatives at the institutional level, massive awareness and promotion of cultivation of medicinal plants by farmers, to trade-related interventions and quality focus measures.
- SMPBs to be strengthened
- The National Medicinal Plant Board (NMPB) implements the medicinal plant component of Ayush through state bodies—State Medicinal Plant Boards (SMPBs).
- The organisational structure of SMPBs needs to be strengthened.
- They should have experts for conservation, cultivation, R&D, herbal garden and nurseries, IEC and marketing and trade of medicinal plants.
- Prime Minister Narendra Modi laid the foundation of the WHO-Global Centre for Traditional Medicine in Jamnagar on April 19, 2022.

- This will be the first and only global outpost centre for traditional medicine across the world.
- NITI Aayog has already constituted a committee and four working groups on integrative medicine, with more than 50 experts across the country, to provide deeper insights and recommendations in the areas of education, research, clinical practice and public health and administration.
- agencies, namely the Anti-Corruption Bureau, the Civil Services and the Electricity Board.
- The issues pertaining to the power to appoint the Public Prosecutor in Delhi and to appoint a Commission of Enquiry under the Commissions of Enquiry Act, etc. were vexed legal questions necessitating interpretation of the Constitution.
- The five-judge Bench opened a new jurisprudential chapter in the Administration of NCT by invoking the rule of purposive construction to say that the objectives behind the Constitution (Sixty-ninth Amendment) Act shall guide the interpretation of Article 239AA and breathed the principles of federalism and democracy into Article 239AA, thereby finding a parliamentary intent to accord a sui generis status in distinction from other Union Territories.

## **THE HINDU**

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### **Delhi dual governance**

#### **Dilemmas of dual governance**

- The status of Delhi being a Union Territory under Schedule 1 of the Constitution but christened the 'National Capital Territory' under Article 239 AA, engrafted by the Constitution (Sixty-ninth Amendment) Act, 2014, put the dynamics of the relationship between the elected Council of Ministers in Delhi and the Central Government under severe strain.
- The Administrator of Delhi, renamed as the Lieutenant Governor (L-G) under the aforementioned amendment, crossed swords with the elected government on multiple issues, including control over
- The Court declared that the L-G is bound by the "aid and advice" of the Council of Ministers, noting that the Delhi Assembly also has the power to make laws over all subjects that figure in the Concurrent List, and all, except three excluded subjects, in the State List.
- The L-G ought to act on the "aid and advice" of the Council of Ministers,

except when he refers a matter to the President for a final decision.

- Regarding the L-G's power to refer to the President any matter on which there is a difference of opinion between L-G and the Council of Ministers, the Supreme Court ruled that "any matter" cannot be construed to mean "every matter", and such a reference shall arise only in exceptional circumstances.
- L-G shall act as a facilitator rather than anointing himself as an adversary to the elected Council of Ministers.
- At the same time, the Court ruled that the National Capital Territory of Delhi cannot be granted the status of a State under the constitutional scheme.

#### **Split verdict on services**

- After the Constitution Bench laid down the law on the broad issues involved, the contested questions were listed before a two-judge Bench.
- The Court unanimously held that while the Anti-corruption Bureau belongs to the province of the Centre, the Electricity Board under Government of NCT is the Appropriate Authority under the Electricity Act of 2003.

- While it held that only Central Government has the power to constitute enquiry Commission under the 1952 Act, the power to appoint Public Prosecutor is vested with Government of NCT.
- While one Judge found that services were totally outside the purview of the Government of NCT, the other held that officers below the rank of joint secretary are under the control of the Government of NCT.

#### **THE HINDU**

#### **Jute industry crisis**

#### **What is the problem?**

- In simple words, mills are procuring raw jute at prices higher than what they are selling them at after processing.
- Let's understand the mechanism first. Mills do not acquire their raw material directly from the farmers, but instead through intermediaries.
- As a standard practice, the middlemen charge mills for their services, which involves procuring jute from farmers, grading, bailing and then bringing the bales to the mills.
- The government has a fixed Minimum Support Price (MSP) for raw jute procurement from farmers,

which is ₹4,750 per quintal for the 2022-23 season.

- However, as the executive stated, this reached his mill at ₹7,200 per quintal, that is, ₹700 more than the ₹6,500 per quintal cap for the final product.

### **What happened to supply?**

- What made the situation particularly worrisome recently was the occurrence of Cyclone Amphan in May 2020 and the subsequent rains in major jute producing States.
- These events led to lower acreage, which in turn led to lower production and yield compared to previous years.
- Additionally, as the Commission for Agricultural Costs and Prices (CACP) stated in its report, this led to production of a lower quality of jute fibre in 2020-21 as water-logging in large fields resulted in farmers harvesting the crop prematurely.
- Acreage issues were accompanied by hoarding at all levels right from the farmers to the traders.

### **Where is jute used?**

- Bulk of the final jute produced is used for packaging purposes.
- The provisions of the Jute Packaging Material (Compulsory use in Packing Commodities) Act, 1987 or the JPM

Act mandate that 100% production of food grains and 20% sugar production must be packaged in jute bags.

- The share of jute used for sacks, therefore, increased from 67.9% for the TE (TE: Triennium Ending or three years ending) 2010-11 to 78.3% in TE 2020-21. On the other hand, jute used for manufacturing other products (such as furnishing materials, fashion accessories, floor coverings or varied applications in paper and textile industries) has declined from 15.5% to 9.7% during the same period.
- As per the Food and Agriculture Organisation (FAO), India is the largest producer of jute followed by Bangladesh and China.
- However, in terms of acreage and trade, Bangladesh takes the lead accounting for three-fourth of the global jute exports in comparison to India's 7%.
- This can be attributed to the fact that India lags behind Bangladesh in producing superior quality jute fibre due to infrastructural constraints related to retting, farm mechanisation, lack of availability of certified seeds and varieties suitable for the country's agro-climate.
- Further, as the CACP report stated, Bangladesh provides cash subsidies

for varied semi-finished and finished jute products.

- Hence, the competitiveness emerges as a challenge for India to explore export options in order to compensate for the domestic scenario.

### **What is at stake?**

- As the jute sector provides direct employment to 3.70 lakh workers in the country and supports the livelihood of around 40 lakh farm families, closure of the mills is a direct blow to workers and indirectly, to the farmers whose production is used in the mills.

### **THE HINDU**

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#### **Nand Mulchandani**

- Nand Mulchandani, an Indian-American Silicon Valley IT expert who studied at a Delhi school, has been appointed the Central Intelligence Agency's (CIA) first ever Chief Technology Officer.

### **THE HINDU**

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## Federalism in India

- India consciously adopted a version of federalism that made the Union government and State governments interdependent on each other (latter more vis-a-vis the former) thereby violating the primal characteristic of a federal constitution i.e., autonomous spheres of authority for Union and State governments.
- Similar other constitutional features include the size and composition of the Rajya Sabha akin to that of the Lok Sabha thereby favouring larger States;
- Article 3 of the Indian Constitution which allows the Union to alter the boundaries of a State without the latter's consent, emergency powers, and concurrent list subjects of the Seventh Schedule wherein the Union possesses more authority than the State barring a few exceptions.
- India's centralised federal structure was not marked by the process of 'coming together' but was an outcome of 'holding together' and 'putting together'.
- Ambedkar called India's federation a Union as it was indestructible which is why the Constitution does not contain words related to federalism. He also said that India's Constitution holds requisite flexibility to be federal and unitary on a need basis.
- While the Supreme Court of India held that federalism was a part of the basic structure of the Indian Constitution in the S.R. Bommai vs Union of India case (1994), the Court also held that the Indian variant of federalism upholds a strong centre in the Kuldip Nayar vs Union of India case (2006).
- Professor Louise Tillin argues that a conscious effort on the part of the framers of the Constitution to ensure flexibility and accommodate diversity renders India's federalism an original form which is neither conventional nor reductive.

### The reasons for a centralised federal structure

- First was the partition of India and the concomitant concerns. Anticipating the Muslim League's participation in the Constituent Assembly debates following the Cabinet Mission plan in 1946, the Objectives Resolution introduced by Jawaharlal Nehru in the Assembly were inclined towards a decentralised federal structure wherein States would wield residuary powers.
- Further, in his presidential address at the 44th session of the INC, J.B.

Kripalani too spoke in favour of maximum autonomy to the States and regarded centralisation to be at odds with liberty.

- However, after the Partition a revised stand was unanimously taken by the Union Powers Committee of the Constituent Assembly, in favour of a strong Union with residuary powers and weaker States, to safeguard the integrity of the nation.
- The second reason pivoted around the reconstitution of social relations in a highly hierarchical and discriminatory society towards forging a national civic identity.
- The third reason concerns the objective of building a welfare state.
- Drawing from existing literature, Tillin shows that in a decentralised federal setup, redistributive policies could be structurally thwarted by organised (small and dominant) groups.
- Instead, a centralised federal set-up can prevent such issues and further a universal rights-based system.
- The final reason involved the alleviation of inter-regional economic inequality

### **The present and the future**

- The current form of federalism in the Indian context is largely a function of

the intent of the government of the day and the objectives it seeks to achieve.

- The majoritarian tendencies prevalent today are subverting the unique and indigenised set-up into an asymmetrical one.
- Inter alia, delayed disbursement of resources and tax proceeds, bias towards electorally unfavourable States, evasion of accountability, blurring spheres of authority, weakening institutions, proliferation of fissiparous political ideologies all signal towards the diminishing of India's plurality or regionalisation of the nation a process that is highly antithetical to the forging of a supra-local and secular national identity that preserves and promotes pluralism.

### **THE HINDU**

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#### **Transnistria in Ukraine Russia war**

##### **The story so far**

- As the Russia-Ukraine War completes over two months, Transnistria, the tiny breakaway region of Moldova, risks being dragged into the conflict.



### **Where is Transnistria?**

- The de facto state lies between Moldova to its west and Ukraine towards its east.
- Often described as a “remnant of the Soviet Union”, Transnistria declared independence like Moldova did soon after the break-up of the Soviet Union.
- When Moldovan troops attempted to take over the territory in 1990-1992, Transnistria was able to resist them because of Russian soldiers based in Transnistria. Since then, it has remained free of Moldovan control.
- However, most countries continue to see Transnistria as part of Moldova.

### **What is the political make-up of Transnistria?**

#### **Why is it in the news now?**

- Transnistria risks being drawn into the Russia-Ukraine war because of reports of a series of explosions in its territory.
- First, there was an attack by men using rocket propelled grenades on its security headquarters, followed by an attack on a radio centre which broadcasts Russian news.
- There are fears in the West and in Ukraine that Transnistria could be used as a staging ground in the

conflict between Russia and Ukraine and that Russia might use Transnistria to cut off the southwestern corner of Ukraine, leading to direct Russian intervention inside Moldova.

- It has its own government (which is pro-Russian), Parliament, armed force, constitution, flag, anthem, etc.
- In a referendum held in 2006, over 97% of Transnistrians voted for future integration with Russia and after the annexation of Crimea, the government asked if it could be absorbed into Russia.

### **What lies ahead?**

- There is little Moldova, Europe’s poorest country, can do in this situation. It is constitutionally neutral and has a very small military force.
- It is not a member of NATO. So, there is little chance of NATO coming to its rescue, particularly since NATO cannot give membership to countries which have border disputes with other countries.
- Similarly, it is not a member of the European Union though it is pro-Europe.
- In March this year, Moldova had signed an official request to join the EU.

## THE HINDU

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### Debate on national language

#### What is the status of Hindi?

- Under Article 343 of the Constitution, the official language of the Union shall be Hindi in Devanagari script.
- The international form of Indian numerals will be used for official purposes
- Ultimately, it was decided that the Constitution will only speak of an 'official language'.
- And that English would continue to be used for a period of 15 years.
- The Constitution said that after 15 years, Parliament may by law decide on the use of English and the use of the Devanagari form of numbers for specified purposes.

#### What is the Eighth Schedule?

- The Eighth Schedule contains a list of languages in the country. Initially, there were 14 languages in the schedule, but now there are 22 languages.
- There is no description of the sort of languages that are included or will be included in the Eighth Schedule.
- There are only two references to these languages in the text of the Constitution.
- One is in Article 344(1), which provides for the formation of a

Commission by the President, which should have a Chairman and members representing these scheduled languages.

- The purpose of the Commission is to make recommendations for the progressive use of Hindi for official purposes of the Union and for restricting the use of English.
- The second reference, found in Article 351, says it is the Union government's duty to promote the spread of Hindi so that it becomes "a medium of expression for all elements of the composite culture of India" and also to assimilate elements of forms and expressions from Hindustani and languages listed in the Eighth Schedule.

#### What were the 1965 protests about?

- The Official Languages Act, 1963 was passed in anticipation of the expiry of the 15-year period during which the Constitution originally allowed the use of English for official purposes.
- Its operative section provided for the continuing use of English, notwithstanding the expiry of the 15-year period.
- This came into force from Jan 26, 1965, a date which marked the completion of 15 years since the Constitution was adopted.

- Jawaharlal Nehru had given an assurance in 1959 that English would remain in official use and as the language of communication between the Centre and the States.
- The Official Languages Act, 1963, did not explicitly incorporate this assurance, causing apprehensions in some States as the January 1965 deadline neared. At that time, Prime Minister Lal Bahadur Shastri reiterated the government's commitment to move towards making Hindi the official language for all purposes.
- In Tamil Nadu, then known as Madras, the prospect of the use of Hindi as the medium of examination for recruitment to the Union public services created an apprehension that Hindi would be imposed in such a way that the future employment prospects of those who do not speak Hindi will be bleak.

### **What is the three-language formula?**

- Since the 1960s, the Centre's education policy documents speak of teaching three languages Hindi, English and one regional language in Hindi-speaking States, and Hindi, English and the official regional language in other States.
- In practice, however, only some States teach both their predominant language and Hindi, besides English.

## **THE HINDU**

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### **Death penalty**

- The Supreme Court has extended the deadline of April 30 by two months for the Centre to make a decision on Balwant Singh Rajoana's mercy petition, which is pending, with excruciating cost on the prisoner, for the last decade. Balwant Singh was awarded death sentence in the case of former Chief Minister of Punjab Beant Singh's assassination in 1995.
- Supreme Court's mandate in Bachan Singh vs State of Punjab on stating special reasons before imposing the extreme punishment of death, as opposed to the norm of sentence of life, after their assessment of aggravating factors and mitigating circumstances, i.e. circumstances related to the crime and the convict's life history which exasperate and alleviate respectively, the death worthiness of the convict.
- The findings of Project 39A's report 'Death worthy', a study on mental health of prisoners on death row in India, show that the segregated, alienated and stigmatised experiences of being on a death row may result in mental illnesses

- the Supreme Court can step in and commute death sentence on account of undue delay in disposal of the mercy petition, amounting to torture and violation of his right to life under Article 21 of the Indian Constitution.

**THE HINDU**

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### **SC on vaccination**

- The Supreme Court upheld the right of an individual against forcible vaccination and the government's COVID-19 vaccination policy to protect communitarian health, but found certain vaccine mandates imposed by the State governments and Union Territory administrations disproportionate as they tend to deny access to basic welfare measures and freedom of movement to unvaccinated individuals.
- A Bench led by Justice L. Nageswara Rao said such mandates wilted in the face of "emerging scientific opinion" that the risk of transmission of the infection from unvaccinated individuals was almost on a par with that from those vaccinated.
- "With respect to bodily integrity and personal autonomy of an individual in the light of vaccines and other public health measures introduced to deal with the COVID-19 pandemic,

we are of the opinion that bodily integrity is protected under Article 21 (right to life) of the Constitution and no individual can be forced to be vaccinated,"

**THE HINDU**

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## Cotton

- With some textile mills raising cotton yarn prices on Monday, garment manufacturers in Tiruppur have called for a ban on export of cotton and cotton yarn.
- Textile mills have, meanwhile, urged the Union Government to come out with a system to collect accurate data on cotton production and consumption.
- “Textile mills are adding spindles and cotton consumption is increasing. Only with proper data can the government take decisions that will help the industry,”
- It is estimated that at least two lakh spindles are added every month leading to higher demand for cotton.
- Textile mills have started contracting cotton from overseas suppliers though international prices are at present slightly higher than domestic prices.
- If cotton and yarn exports are banned, prices will crash and the mills will incur losses.
- Cotton prices reduced slightly when the government removed the import duty.
- However, prices have started rising since. The government should announce a technology mission on cotton to increase productivity and

introduce a system to collect proper data on cotton.

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## India and Denmark

- India and Denmark agreed to further strengthen the Green Strategic Partnership with a focus on green hydrogen, renewable energy and wastewater management
  - A number of agreements covering sectors such as green shipping, animal husbandry and dairying, water management, energy, cultural exchange were inked after the bilateral talks.
  - The two Prime Ministers welcomed the intention of both countries to expand the existing cooperation in the field of water management to meet present and future demand through a holistic approach.
  - India and Denmark also confirmed their continued collaboration in the field of antimicrobial resistance.
  - India conveyed its acceptance of the Danish invitation to join the International Center for Antimicrobial Resistance Solutions (ICARS) as Mission Partner.
- About ICARS**
- The International Centre for Antimicrobial Resistance Solutions

(ICARS), was established by the Danish government in 2018 with a mission to develop evidence-based solutions to mitigate antimicrobial resistance (AMR) in low- and middle-income countries (LMICs) across the human, veterinary and environment sectors taking a One Health approach.

- One Health is a collaborative, multisectoral, and transdisciplinary approach working at the local, regional, national, and global levels with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment.

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## **Lapsus\$**

- Remote Desktop Protocol (RDP) is a protocol or technical standard that provides a user with a graphical interface to connect to a desktop computer remotely.

### **What do we know about Lapsus\$?**

- The cyber-crime group Lapsus\$ is said to be based in South America.
- The group is relatively new but has successfully breached major firms like Microsoft.

- It has also publicly taunted their victims, leaking their source code and internal documents.
- They have even gone to the extent of joining Zoom calls of companies they breached, taunting employees and consultants who are trying to clean up their hack.
- Their tactics include phone-based social engineering, SIM-swapping to facilitate account takeover, accessing personal email accounts of employees at target organisations, and paying employees, suppliers, or business partners of their targets to get their credentials and multifactor authentication (MFA) approval
- Social engineering efforts include gathering data about a target's business operations, employees, team structures, help desks, crisis response workflows, and supply chain relationships.
- They spam a target with MFA prompts and call the organisation's help desk to reset a target's credentials.
- The group can also perform SIM-swapping attacks to access a user's phone number and handle phone-based authentication prompts to sign into the corporate network.

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## National judicial infrastructure corporation

- The proposal by the Chief Justice of India (CJI) for a national judicial infrastructure corporation with corresponding bodies at the State level, did not find favour with many Chief Ministers at the recent joint conference of Chief Justices and Chief Ministers.
- A special purpose vehicle, vested with statutory powers to plan and implement infrastructure projects for the judiciary, would have been immensely helpful in augmenting facilities for the judiciary, given the inadequacies in court complexes across the country.
- If his proposal had been accepted, the available funding as a centrally sponsored scheme, with the Centre and States sharing the burden on a 60:40 ratio, could have been gone to the national authority, which would allocate the funds through high courts based on need.
- It is likely that Chief Ministers did not favour the idea as they wanted a greater say in the matter.
- Given the experience of allocated funds for judicial infrastructure going unspent in many States, it remains to be seen how far the proposed State-level bodies would be successful in

identifying needs and speeding up implementation.

- The conversation between the judiciary and the executive at the level of Chief Justices and Chief Ministers may help bring about an atmosphere of cooperation so that judicial appointments, infrastructure upgradation and downsizing pendency are seen as common concerns.

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## Article 200 and governor assent

- The Governor is an appointee of the President, which means the Union government.
- Although Article 154(1) of the Constitution vests in the Governor the executive power of the State, he is required to exercise that power in accordance with the Constitution.
- In other words, the Governor can act only on the aid and advice of the Council of Ministers.
- It is a settled constitutional position that the Governor is only a constitutional head and the executive power of the State is exercised by the Council of Ministers.
- In *Shamsher Singh vs State of Punjab* (1974), the Supreme Court had

clearly affirmed this position in the following words: “We declare the law of this branch of our Constitution to be that the President and Governor, custodians of all executives and other powers under various Articles, shall, by virtue of these provisions, exercise their formal constitutional powers only upon and in accordance with the advice of their Ministers save in a few well known exceptional situations.

- Dr. Ambedkar explained the position of the Governor in the Constituent Assembly as follows: “The Governor under the Constitution has no functions which he can discharge by himself: no functions at all.”
- The Sarkaria Commission restates this position in its report, “it is a well-recognized principle that so long as the council of ministers enjoys [the] confidence of the Assembly its advice in these matters, unless patently unconstitutional, must be deemed as binding on the governor”.
- In 2016, a five-judge constitution Bench of the Supreme Court (the Nabam Rebia case) reaffirmed the above position on the governors’ powers in our constitutional setup.
- Article 200 of the Constitution provides for four alternative courses of action for a Governor when a Bill after being passed by the legislature is presented to him for his assent. Assent of the Governor or the President is necessary for a Bill to become law.
- The Governor can give his assent straightaway or withhold his assent. He may also reserve it for the consideration of the President, in which case the assent is given or withheld by the President.
- The fourth option is to return the Bill to the legislature with the request that it may reconsider the Bill or any particular provision of the Bill.
- The Governor can also suggest any new amendment to the Bill. When such a message is received from the Governor, the legislature is required to reconsider his recommendations quickly.
- However, if the legislature again passes the Bill without accepting any of the amendments suggested by the Governor he is constitutionally bound to give assent to the Bill.
- The Governor of Tamil Nadu returned the NEET Bill to the Assembly for reconsideration of the Bill.
- Accordingly, the Assembly held a special session in the first week of February and passed it again and presented it to the Governor for his



assent. He has not assented to the Bill so far.

- While it is true that Article 200 does not lay down any time frame for the Governor to take action under this Article, it is imperative on the part of the Governor to exercise one of the options contained therein.
- A constitutional authority cannot circumvent a provision of the Constitution by taking advantage of an omission.
- The option mentioned in Article 200 is meant to be exercised by the Governor without delay.
- The context of Article 200 needs to be understood to be able to take the correct decision.
- After a Bill is passed by the legislature, it is sent to the Governor immediately.
- Although Article 200 does not say by what time the Governor should take the next step, it clearly and unambiguously states the options for him to exercise.
- In fact, the words used in Article 200 “... it shall be presented to the governor and the governor shall declare....” indicates that the Constitution requires the Governor to act without delay upon the presentation of the Bill.
- The reason is obvious. The legislature passes a Bill because

there is an urgency about it. But if the Governor does not act, the will of the legislature is frustrated

- Under Article 361, the President or a Governor is not answerable to any court for anything done in the exercise and performance of their powers and duties.

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## RBI monetary stance

- The Reserve Bank of India (RBI), in a sudden move on Wednesday, raised the repo rate by 40 basis points (bps) to 4.4% citing inflation that was globally “rising alarmingly and spreading fast”. The repo rate increase was the first since August 2018.
- “As the war draws on and sanctions and retaliatory actions intensify, shortages, volatility in commodity and financial markets, supply dislocations and, most alarmingly, persistent and spreading inflationary pressures are becoming more acute with every passing day.
- While Russia’s invasion of Ukraine and the subsequent western sanctions on Moscow have roiled the outlook for prices on a range of commodities, including wheat, edible oil, crude oil and coal, Indian households’ perception and expectations of inflation have been running well above the RBI’s upper tolerance threshold of 6% for more than two years.
- With central banks in advanced economies led by the U.S. Federal Reserve pursuing a path of policy normalisation, the prospects of volatility in capital flows adding pressure on the exchange rate and consequently heightening the risks of imported inflation have also surely queered the pitch for the RBI.
- The fact that the novel coronavirus is still lurking and it could trigger a fresh wave of infections, as seen in China, adds considerably to the uncertainty.
- Monetary authorities have also rightly pointed to the impact that the increases in domestic pump prices of petroleum products have had on inflation.
- The MPC, however, retained its ‘accommodative’ policy stance even as it focuses on withdrawal of accommodation to keep inflation within the target range while supporting growth.
- An accommodative stance indicates that the central bank is prepared to expand the money supply in order to boost economic growth. During an accommodative policy period, the central bank is willing to lower interest rates. A rate increase is ruled out.
- As part of the withdrawal of accommodation, the RBI also raised the Cash Reserve Ratio (CRR) by 50 basis points to 4.5% with effect from May 21 so as to drain surplus liquidity of about ₹87,000 crore.

- As part of the increases, the standing deposit facility (SDF) rate would become 4.15% and the marginal standing facility (MSF) and bank rate would be 4.65%.

### Terms

- The SDF is a liquidity window through which the RBI will give banks an option to park excess liquidity with it. It is different from the reverse repo facility in that it does not require banks to provide collateral while parking funds.
- Access to the SDF will be at the discretion of banks and it will be available on all days of the year after market hours.
- Marginal standing facility (MSF) is a window for banks to borrow from the Reserve Bank of India in an emergency when inter-bank liquidity dries up completely. The Marginal standing facility is a scheme launched by RBI while reforming the monetary policy in 2011-12.
- It is a penal rate at which banks can borrow money from RBI when they are completely exhausted of all borrowing assistance. The Marginal Standing facility allows banks to borrow money with an interest rate above the repo rate and can be termed as the Marginal standing facility rate.

### Nepal crisis

- The surging trade deficit remains a big concern as it is expected to reach \$18 billion this fiscal year. A Balance of Payments (BoP) deficit and a spiralling debt liability will pose a very grave risk to the economy that is already in deep trouble. Nepal's central bank statistics show the country's inflation averaged 7.14% in the current fiscal, which is the highest in the last 67 months problem areas such as rising inflation, BoP deficit, decreasing remittance, depleting foreign exchange reserves and burgeoning imports beyond an acceptable level.
- A lack of pragmatic policy interventions in Nepal and an abrupt move to reorient economic planning towards 'self-sufficiency' has exposed the structural vulnerability of Nepal's economy.
- It is also true, and unfortunate, that Nepal's economy is overtly politicised.
- Tensions between the Finance Minister, Janardan Sharma, and the Governor of the Central Bank, Maha Prasad Adhikari.
- While several drastic measures such as an import ban on luxury goods and reducing working hours have been announced, these have not

quite succeeded in allaying fears of an impending crisis.

- The ban on imported goods that have no competent alternatives in the domestic market will only hurt the economy until the production of domestically-consumable goods is increased
- India will, undoubtedly, go the extra mile to help Nepal ensure a speedy and comprehensive recovery.
- To not give an adverse response to the usual flow of goods and services, the government should lift the ban on imported goods which do not have competent alternatives in the domestic market

### **Geopolitical changes**

- The broad geopolitical and economic trends are also suggestive of doors opening to more active Nepali participation in the Indo-Pacific economic agenda, with the Nepalese Parliament approving the \$500 million Millennium Challenge Corporation (MCC) grant from the United States; this could substantially upgrade energy cooperation between India and Nepal, and also India agreeing to the United Kingdom, the European Union and other major investment partners working together in third countries on development projects.

- Business leaders in India should be encouraged to be proactive in looking for new opportunities in expanding and diversifying trade and investment ties with Nepal including exploring possibilities in the context of a reset of supply chains in the post COVID-19 situation
- It is vital that Nepal deepen its economic ties with India and facilitate joint ventures that create immense economic opportunities.
- India's unwavering commitment to peace and prosperity in Nepal and its complementarity in its relations with Nepal will help in creating a healthier economic ecosystem in Nepal.

### **THE HINDU**

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#### **Approach to inflation**

- Inflation targeting refers to the policy of controlling inflation by raising the interest rate over which the central bank has control, i.e. the rate at which it lends to commercial banks, the so-called 'repo rate'.
- This, it is argued, will induce firms to stay their investment plans and reduce inventories, lowering production.
- As economy-wide output declines, becoming equal to the natural level of output, inflation will cease.

- The only route by which monetary policy can, in principle, control inflation is by curbing the growth of non-agricultural output, which would in turn lower the growth of demand for agricultural goods.
- As the demand for agricultural goods slows, so will inflation, but this comes at the cost of output and employment?

## **THE HINDU**

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### **Agricultural goods prices**

- Ideally, food prices should decline, for the consequent rise in demand for other goods will propel the economy forward. But the product mix of agriculture becomes relevant here.
- Growing per capita income in India has shifted the average consumption basket towards foods rich in minerals, such as fruits and vegetables, and protein, such as milk and meat.
- But the expansion of the supply of these foods has been lower than the growth in demand for them.
- So a concerted drive to increase the supply of food other than rice and wheat holds the key.
- When they do produce surpluses, their only concern is that these be

procured by the central government at the highest price.

- The stances of the leaders of wheat-producing northern States and rice-producing southern ones reflect this.
- Under these circumstances, a nation-wide project for producing food cheaply remains a distant dream.
- Now that the farm laws have been repealed, it is the time to initiate a discussion on how such a project can be taken forward.
- Costly food threatens the health of the population, as people economise on their food intake, and holds back the economy, as only a small part of a household's budget can be spent on non-agricultural goods.

## **THE HINDU**

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### **Impact on workers**

- According to the Centre for Monitoring Indian Economy (CMIE)'s Consumer Pyramids Household Survey, employment in India fell from 408.9 million in 2019-20 to 387.2 million in 2020-21 and then recovered to 401.8 million in 2021-22.
- The recovery in 2021-22 was inadequate. Employment was still 1.7%, or 7 million short of the

employment level of the pre-pandemic year of 2019-20.

- It has been seen in the past that women suffer job losses disproportionately during economic shocks.
- This was true during the pandemic. Women accounted for less than 11% of all jobs in 2019-20, but they accounted for nearly 52% of the 7 million job losses since then. In urban India, it was worse: women accounted for only 9% of total employment but accounted for a massive 76% of the job losses.
- The impact of this is a sharp fall in the labour participation of women.
- The female labour force participation rate among urban women was abysmally low at 9.4% in 2019-20 and fell to 7% in 2021-22.
- The pandemic has reversed a trend of rising entrepreneurs.
- The count of entrepreneurs who, like small traders and daily wage labourers, also have the freedom to work when conditions permit has also come down – from 78 million in 2019-20 to 75 million in 2021-22.
- About 5.9 million salaried employees have lost employment in the two years of the pandemic.
- Unlike daily wage labourers, small traders and entrepreneurs, salaried employees cannot go back to work at

will. Except for a few high-skill jobs, finding a new salaried job is difficult.

- Investments into new large enterprises make this task particularly difficult. A salaried job is also the most coveted form of employment.
- But until the investment cycle restarts, it may be difficult to see any uptick in salaried jobs.

## **THE HINDU**

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### **GST compensation dues**

#### **The story so far:**

- At a meeting with Chief Ministers last week, Prime Minister Narendra Modi said that several non-BJP ruled States had failed to cut taxes on fuel products whose prices have surged sharply since March and urged them to do so in the interest of giving relief to the people facing high inflation

#### **What is the status of the outstanding GST compensation due to the States?**

- The GST regime entailed doing away with multiple State and Central levies to create a simplified tax system for businesses.
- As this meant that States had to give up several taxation powers in the process, they were assured that

revenue losses will be compensated for five years.

- The compensation was to be calculated by assuming a 14% year-on-year growth over revenues in 2015-16 from the State taxes subsumed in GST, and remitted from a compensation cess fund backed by cess levies on sin and luxury goods like pan masala, tobacco, coal and cars.
- Hours after the meeting, to counter these States' arguments about pending dues, the Finance Ministry said that outstanding GST compensation dues to States for 2021-22 stood at ₹78,704 crore, equivalent to four months of such accruals
- The Finance Ministry responded that outstanding GST compensation dues to States for 2021-22 stood at ₹78,704 crore.
- It said that it was unable to pay the dues owing to 'inadequate balance' in the compensation cess collections fund.
- If States get a larger share of the higher GST collections clocked in April and May, (₹1.42 lakh crore and over ₹1.67 lakh crore respectively) it would help them push capital spending to plan and execute public infrastructure projects quick.

## **WORLD PRESS Freedom index**

### **The story so far:**

- India's ranking in the 2022 World Press Freedom Index has fallen to 150 out of 180 countries, according to the latest report released by the global media watchdog, Reporters without Borders (RSF).
- In last year's report, India was ranked 142. The top three positions for countries with the highest press freedom were taken by the Nordic trio of Norway (a score of 92.65), Denmark (90.27) and Sweden (88.84)

### **What is RSF and what's the objective of this Index?**

- RSF is an international NGO whose self-proclaimed aim is to defend and promote media freedom.
- Headquartered in Paris, it has consultative status with the United Nations.
- The objective of the World Press Freedom Index, which it releases every year, "is to compare the level of press freedom enjoyed by journalists and media in 180 countries and territories" in the previous calendar year.

### **THE HINDU**

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### **Haflong Hindi**

- A “nativised” Hindi associated with Assam’s only hill station is trying to hold its own amid a row over the Centre’s move to make Hindi compulsory in high schools across Northeast India.
- Hindi reached Dima Hasao, a district formerly called North Cachar Hills, in the late 1800s primarily through merchants and construction workers who worked on a mountain railway system.
- By the time the railway line was completed in 1899, the non-tribal settlers and diverse indigenous communities across the hills had developed a pidgin to communicate among themselves.
- It came to be known as Haflong Hindi, named after the headquarters of the district where the Dimasa people are the dominant community.

### **THE HINDU**

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#### **SC on mercy petition**

- The Supreme Court on Wednesday disagreed with the Central government’s suggestion that the court should wait till the President took a call on Rajiv Gandhi assassination case convict A.G. Perarivalan’s mercy plea referred to

him by the Tamil Nadu Governor for a decision.

- Under Article 161 of the Constitution, the Governor was bound by the aid and advice given by the Tamil Nadu Council of Ministers in September 2018 to the Governor to release Perarivalan, who has already served over 30 years of his life sentence.
- The Governor Prima facie had no authority to transfer the mercy plea to the President. There was no role for the President here under the Constitution.

### **THE HINDU**

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#### **2020 Civil Registration System report**

- Ladakh recorded the highest sex ratio at birth in the country in 2020, followed by Arunachal Pradesh, Andaman and Nicobar Islands, Tripura and Kerala, according to the annual report on Vital Statistics based on 2020 Civil Registration System report.
- “Highest Sex Ratio at Birth (SRB) based on registered events has been reported by Ladakh (1,104) followed by Arunachal Pradesh (1,011), A&N Islands (984), Tripura (974), and Kerala (969),” the report released by



the Registrar-General of India on Tuesday said.

- Sex ratio at birth is the number of females per thousand males.
- The lowest sex ratio was reported by Manipur (880), followed by Dadra and Nagar Haveli and Daman and Diu (898), Gujarat (909), Haryana (916) and Madhya Pradesh (921).

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GES  
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## PMI

- New business and output from India's services sector grew at the fastest pace in five months in April, as per the S&P Global India Services PMI, which increased to 57.9, from 53.6 in March.
- The survey showed selling prices surged at the sharpest pace since July 2017 amid a near record upturn in input costs
- The Purchasing Managers Index (PMI)
- The Purchasing Managers Index (PMI) is a measure of the prevailing direction of economic trends in manufacturing.
- The PMI is based on a monthly survey of supply chain managers across 19 industries, covering both upstream and downstream activity.
- The value and movements in the PMI and its components can provide useful insight to business decision makers, market analysts, and investors, and is a leading indicator of overall economic activity.
- The headline PMI is a number from 0 to 100. A PMI above 50 represents an expansion when compared with the previous month.
- A PMI reading under 50 represents a contraction, and a reading at 50 indicates no change. The further

away from 50 the greater the level of change.

- The PMI is calculated as:
- $PMI = (P1 * 1) + (P2 * 0.5) + (P3 * 0)$

### Where

- P1 = percentage of answers reporting an improvement
- P2 = percentage of answers reporting no change
- P3 = percentage of answers reporting a deterioration.

## THE HINDU

### World food prize

- A NASA climate research scientist who has spent much of her career explaining how global food production must adapt to a changing climate was awarded the World Food Prize
- Cynthia Rosenzweig, an agronomist and climatologist, was awarded the \$2,50,000 prize in recognition of her innovative modelling of the impact of climate change on food production.
- She is a senior research scientist at the NASA Goddard Institute for Space Studies and serves as adjunct senior research scientist at the Columbia Climate School at Columbia University, both in New York.

- The World Food Prize is an international award recognizing the achievements of individuals who have advanced human development by improving the quality, quantity, or availability of food in the world.
- Conceived by Nobel Peace Prize laureate Norman Borlaug and established in 1986 through the support of General Foods, the prize is envisioned and promoted as the Nobel or the highest honours in the field of food and agriculture.
- It is now administered by the World Food Prize Foundation with support from numerous sponsors.
- Since 1987, the prize has been awarded annually to recognize contributions in any field involved in the world food supply, such as animal science, aquaculture, soil science, water conservation, nutrition, health, plant science, seed science, plant pathology, crop protection, food technology, food safety, policy, research, infrastructure, emergency relief, and poverty alleviation and hunger.
- Laureates are honored and officially awarded their prize in Des Moines, Iowa, in an award ceremony held at Iowa State Capitol.
- Laureates are presented with a diploma, a commemorative

sculpture designed by Saul Bass and a monetary award of \$ 250,000.

## **THE HINDU**

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### **UK and Japan agreement**

- The militaries of Britain and Japan will “work more closely together” under a defence deal that British Prime Minister Boris Johnson announced during talks with his Japanese counter
- The deal will allow the armed forces of the two Group of Seven nations to deploy together for training, exercises and disaster relief.
- The Prime Ministers agreed that “democracies around the world needed to stand in unity against authoritarian regimes,” the office said after their meeting.
- Japan has condemned Russia’s invasion and joined Western nations in imposing sanctions against Moscow.

## **THE HINDU**

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### **Australia and Solomon Island**

- Australia will respond calmly to the Solomon Islands after it signed a security pact with China, Prime Minister Scott Morrison said, dismissing a furious response by the

leader of the Pacific nation to Western criticism of the deal

- In a fiery speech to Parliament on Tuesday, Prime Minister Manasseh Sogavare said “we are threatened with invasion” but he did not name any countries or give evidence for his claim
- Defence Minister Peter Dutton said he didn’t believe the comments were directed at Australia, which had defence forces and police personnel in the Solomon Islands at Mr. Sogavare’s request.
- The security pact has become a major election issue for Mr. Morrison, who faces Opposition criticism that it made Australia “less safe” and was a major failing of diplomacy by his government.

## **THE HINDU**

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### **Naini mines**

- The Union Coal Ministry has sought to rush through the forest diversion process for proposed opencast coal mining in Angul district of Odisha which would require the felling of more than one lakh standing trees in a reserve forest and cause significant disturbance to the elephant herds.
- Singareni Collieries Company Limited (SCCL), a joint venture company of the Government of India

and Telangana, has proposed to mine coal at the Naini mine in Chhendipada tehsil of the district.

- The total requirement of land for the project is 912.799 hectares, of which 643.095 hectares is reserve forestland and 140.18 hectares is village forestland. The remaining is non-forestland.

## **THE HINDU**

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### **Naga issue**

- The recently released annual report of the Ministry of Home Affairs said that the Isak-Muivah faction of the National Socialist Council of Nagaland (NSCN-IM) was involved in 44% of insurgency-related incidents in Nagaland in 2020.

### **Why did the Naga insurgency begin?**

- The term Naga was created by the British for administrative convenience to refer to a group of tribes with similar origins but distinct cultures, dialects, and customs.
- The Naga tribes are accumulated in Nagaland, Arunachal Pradesh, Manipur, and Myanmar.
- Residing in the Naga hills of Assam during the advent of the British and the annexation of Assam in 1820, the

Nagas did not consider themselves a part of British India.

- The British adopted a way of governance over the Nagas that involved keeping in place their traditional ways of life, customs, and laws while putting British administrators at the top.
- At the time of the withdrawal of the British, insecurity grew among the Naga tribes about the future of their cultural autonomy after India's independence, which was accompanied by the fear of the entry of "plains people" or "outsiders" into their territory.
- These gave rise to the formation of the Naga Hills District Tribal Council in 1945, which was renamed the Naga National Council (NNC) in 1946.
- Amid uncertainties over the post-independence future of the Nagas, a section of the NNC, led by Naga leader A.Z. Phizo declared the independence of the Nagas on August 14, 1947, a day before India's declaration.
- The underground insurgency began in the early 1950s when Mr. Phizo founded the Naga Federal Government (NFG) and its armed wing, the Naga Federal Army (NFA).
- The Central Government sent the armed forces into Naga areas to curb the insurgency and imposed the contentious Armed Forces Special Powers Act (AFSPA), which is still in place in parts of Nagaland.
- The Nagas, led by Mr. Phizo, demanding an independent state outside of India, boycotted the 1952 and 1957 general elections and armed clashes grew.
- Unlike other groups in the north east which were accepting some form of autonomy under the Constitution, Nagas rejected this in favour of sovereignty.
- Some leaders among the NNC formed their own group to hold discussions with the government, leading to the formation of the State of Nagaland in 1963.
- This, however, did not satisfy many in the NNC and NFG, who, following years of negotiations with the government, eventually signed the Shillong Accord of 1975, agreeing to surrender arms and accept the Constitution.

#### **When did the NSCN come into the picture?**

- This signing of the Shillong Accord was not agreeable with many top leaders of the NNC and those operating from Myanmar as the agreement did not address the issue of Naga sovereignty and coerced them to accept the Constitution.

- Three NNC leaders Thuingaleng Muivah of the Tangkhul Naga tribe of Manipur's Ukhrul district, Isak Chishi Swu of the Sema tribe, and S. S. Khaplang from Myanmar's Hemis tribe, formed the National Socialist Council of Nagaland (NSCN) to continue the armed movement.
- The motto of the NSCN was to create a People's Republic of Nagaland free of Indian rule.
- In 1988, after years of infighting and violent clashes along tribal lines and over the main cause of the movement, the NSCN split into two factions.
- One, led by Mr. Muiwah and Swu called the NSCN-IM and the other, led by Mr. Khaplang called the NSCN-K.
- The NSCN-IM demanded and continues to demand 'Greater Nagaland' or Nagalim it wants to extend Nagaland's borders by including Naga-dominated areas in the neighbouring States of Assam, Manipur and Arunachal Pradesh
- In 1997, the Government of India got the NSCN-IM to sign a ceasefire agreement to begin the holding of talks with the aim of signing a Naga Peace Accord.
- There have been over a hundred rounds of talks, after the ceasefire, between the Centre and the insurgent group but no solution.
- In 2015, it signed a Framework Agreement with the NSCN (IM), the first step towards an actual Peace Accord.
- The then Joint Intelligence Chief R.N. Ravi was appointed the interlocutor for Naga peace talks and signed the agreement on behalf of the Centre.

## **THE HINDU**

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### **Spice jet accident**

- On May 1, a Boeing 737-800 aircraft of SpiceJet, on a scheduled flight with 195 passengers on board experienced severe turbulence which resulted in injuries to passengers and damage to the aircraft.
- The Directorate General of Civil Aviation (DGCA), has categorised it as an "accident".
- An aviation expert stated that it looked like the flight crew had not followed the speed for turbulence penetration.
- This, he said, was probably why severe conditions were encountered.
- The aviation expert highlighted the important factor of Total Air Temperature (TAT), which is the best guide for turbulence, and how

awareness about the same is low these days.

- In aviation, stagnation temperature is known as total air temperature and is measured by a temperature probe mounted on the surface of the aircraft.
- The probe is designed to bring the air to rest relative to the aircraft. As the air is brought to rest, kinetic energy is converted to internal energy.
- The air is compressed and experiences an adiabatic increase in temperature. Therefore, total air temperature is higher than the static (or ambient) air temperature.
- Flying in adverse weather calls for good meteorological knowledge, a thorough understanding of the aircraft's radar functions, planning, anticipation, and, most importantly, the crew's overall assessment of the weather situation.

## **THE HINDU**

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### **SC sedition**

- A 60-year-old Constitution Bench judgment validating sedition law led a three judge Bench headed by Chief Justice of India N.V. Ramana on Thursday to pause to examine if petitions challenging the colonial provision should be referred to a

larger Bench of five or seven judges of the court.

- The 1962 judgment in Kedar Nath v State of Bihar delivered by a Bench of five judges of the Supreme Court had upheld Section 124A (sedition) of the Indian Penal Code while restricting its applicability to "activities involving incitement to violence or intention or tendency to create public disorder or cause disturbance of public peace".
- The 1962 judgment in Kedar Nath v State of Bihar
- The Supreme Court of India upheld the constitutional validity of the provisions of the Indian Penal Code that penalized sedition.
- Kedar Nath Singh had been convicted for sedition and inciting public mischief because of a speech in which he criticized the government and advocated for the Forward Communist Party.

## **THE HINDU**

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### **WHO estimates on Covid death**

- There were likely 47 lakh deaths, directly or indirectly attributable to COVID-19, in India in 2020 and 2021, a report by the World Health Organization (WHO).

- These are the highest, by far, for any country and make up nearly a third of the 15 million such deaths estimated by the agency globally.
- India officially estimated only 4.8 lakh cumulative deaths linked to COVID-19 as of December 2021, which implies that the WHO estimate is nearly 10 times the government count.
- As of May, India's official COVID-19 death toll is 5.2 lakh. Minutes after the WHO released its estimate, India reiterated its "objection to the methodology" used.

**THE HINDU**

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## Starlink

- SpaceX brought four astronauts home with a midnight splashdown in the Gulf of Mexico
- Elon Musk's company has now launched 26 people into orbit in less than two years, since it started ferrying astronauts for NASA. Eight of those 26 were space tourists.
- Barely five hours after splashdown, had SpaceX launched a fresh batch of its own internet satellites known as Starlinks from Cape Canaveral.

### About Starlink

- Starlink is a satellite internet constellation operated by SpaceX.
- It provides satellite Internet access coverage to 32 countries where its use has been licensed, and aims for global coverage.
- As of April 2022 Starlink consists of over 2,100 mass-produced small satellites in low Earth orbit (LEO), which communicate with designated ground transceivers.
- The SpaceX satellite development facility in Redmond, Washington, houses the Starlink research, development, manufacturing, and orbit control teams.

### THE HINDU

## NFHS

- The Total Fertility Rate (TFR), an average number of children per woman, has further declined from 2.2 to 2.0 at the national level between National Family Health Survey (NFHS) 4 and 5.
- There are only five States Bihar (2.98), Meghalaya (2.91), Uttar Pradesh (2.35), Jharkhand (2.26) Manipur (2.17) in India which are above replacement level of fertility of 2.1 as per the national report of the NFHS-5, released by the Union Health Ministry.
- The main objective of successive rounds of the NFHS has been to provide reliable and comparable data relating to health and family welfare and other emerging areas in India.
- The other key highlights of the survey include institutional births increased from 79% to 89% across India and in rural areas around 87% births being delivered in institutions and the same is 94% in urban areas.
- As per results of the NFHS-5, more than three fourths (77%) children aged between 12 and 23 months were fully immunised, compared with 62% in NFHS-4.
- The level of stunting among children under five years has marginally

declined from 38% to 36% in the country since the last four years.

- Stunting is higher among children in rural areas (37%) than urban areas (30%) in 2019-21.
- Additionally, NFHS-5 shows an overall improvement in Sustainable Development Goals indicators in all States/Union Territories (UTs).
- The extent to which married women usually participate in three household decisions (about health care for herself; making major household purchases; visit to her family or relatives) indicates that their participation in decision-making is high, ranging from 80% in Ladakh to 99% in Nagaland and Mizoram.
- Rural (77%) and urban (81%) differences are found to be marginal.
- The prevalence of women having a bank or savings account has increased from 53% to 79% in the last four years.

## **THE HINDU**

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### **Rise in obesity**

- Compared with NFHS-4, the prevalence of overweight or obesity has increased in most States/UTs in NFHS-5.

- At the national level, it increased from 21% to 24% among women and 19% to 23% among men.
- More than a third of women in Kerala, Andaman and Nicobar Islands, Andhra Pradesh, Goa, Sikkim, Manipur, Delhi, Tamil Nadu, Puducherry, Punjab, Chandigarh and Lakshadweep (34-46 %) are overweight or obese.

## **THE HINDU**

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### **Capital punishment jurisprudence**

- It is clear that the present trajectory of judicial thinking will not only reaffirm the fundamentals of the rarest of rare principle but also lead a new wave of thinking in the jurisprudence around capital punishment.

### **Sentencing lapses**

- Capital punishment once delivered by the court of sessions (“sentencing court”) is required under law, specifically Chapter 28 of the Code of Criminal Procedure, to be confirmed by the jurisdictional High Court (“confirming court”).
- The development of case laws on the point of sentencing has emphasised that sentencing cannot be a

formality and that the sentencing court must make a genuine effort to hear the accused on the question of sentence.

- *Bachan Singh vs State of Punjab* (1980), the leading case on this point, calls for mitigating and aggravating circumstances to be balanced against each other and laid down the principle that the death penalty ought not to be awarded unless the alternative of life imprisonment is “unquestionably foreclosed”
- It is also an equally well-established legal principle that in a sentencing hearing, the accused must necessarily be provided with sufficient opportunity to produce any material that may have bearing on the sentencing exercise.
- A report by the National Law University Delhi’s Project 39A (earlier known as the “Centre on the Death Penalty”) titled ‘Matters of Judgment’ found that there is no judicial uniformity or consistency when it comes to awarding the death sentence.

## **THE HINDU**

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### **Mitigation investigation**

- In *Rajendra Pralhadrao Wasnik vs The State of Maharashtra* (2018), the Court was open to bringing on record material pertaining to the convict “about his conduct in jail, his conduct outside jail if he has been on bail for some time, medical evidence about his mental make-up, contact with his family and so on”.
- Building on this, the Court, in *Mofil Khan vs State of Jharkhand* (2021), held that the “the State is under a duty to procure evidence to establish that there is no possibility of reformation and rehabilitation of the accused” and that “the Court will have to highlight clear evidence as to why the convict is not fit for any kind of reformatory and rehabilitation scheme.
- For a complete mitigation investigation, professionals trained in psychology, sociology and criminology are required in addition to legal professionals.
- Taking cognisance of the value of a holistic approach to mitigation investigation, the Court in *Manoj & Ors vs State of Madhya Pradesh* (2022) issued directions to the State to place before the court all “report(s) of all the probation officer(s)” relating to the accused and reports “about their conduct

and nature of the work done by them” while in prison.

- The intervention of the Supreme Court of India in, hopefully, framing guidelines around incorporation of a mitigation analysis and consideration of psycho-social reports of the prisoner at the time of sentencing is timely and necessary.
- As a result, the responsibility of the sentencing and confirming courts will now be greater in ensuring that no death sentence is manually awarded or routinely confirmed.

## **THE HINDU**

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### **Increasing heat waves**

- To get to grips with this predicament, India must initiate safety nets a combination of targeted transfers and insurance schemes to improve the resilience of outdoor workers.
- Transfers are best linked to the beneficiaries’ own efforts to build resilience, for example, adapting agricultural practices to the uptick in heatwaves.
- Over the last 100 years, global temperatures have risen by 1.5°C and, at the current rate, could reach 4°C by 2100 an unthinkable scenario.

So far in the year, 2022 has been the fifth-warmest year on record.

- The prevalence of extreme temperatures around the world suggests that India’s warming is the result not only of local factors but also global warming.
- In fact, scientists have made clear how greenhouse gas (GHG) emissions exacerbate temperatures in the oceans, leading to soaring temperatures.
- The culprit in the current plight from intense weather is not Mother Nature but anthropogenic GHG emissions.

### **High economic losses**

- India faces the largest heat exposure impacts in South Asia.
- One study finds that 1,41,308 lives were claimed by acute weather in India during 1971-2019, of which the loss of 17,362 lives was due to unrelenting heat, with mortality rates rising by two-thirds during the time period.
- Worldwide economic losses, by one estimate, could reach U.S.\$1.6 trillion (₹1.6 lakh crore) annually if global warming exceeds 2°C.
- India, China, Pakistan, and Indonesia, where large numbers of people work outdoors, are among the most vulnerable.

- India's outdoor workers, reeling under daily temperatures more than 40°C, are on the frontlines of the climate catastrophe.
- The wellbeing of outdoor workers will be fundamentally determined by the ability to keep the temperature rise to well below 2°C
- Climate mitigation or decarbonisation of economies on the part especially of the big emitters, such as the United States, the European Union, China, and India remains an imperative. But temperatures are set to rise regardless of mitigation, based on the emission damage already done.

#### **Adaptation is essential**

- A crucial aspect of adaptation is better environmental care that can contribute to cooling.
- Heatwaves are rooted in degraded land and relentless deforestation, which exacerbate wildfires.
- Agriculture, being water-intensive, does not do well in heat wave prone areas. A solution is to promote better agricultural practices which are not water-intensive, and to support afforestation that has a salutary effect on warming.

#### **Collaboration for insurance**

- Insurance schemes can help transfer some of the risks of severe heat faced by industrial, construction and agricultural workers to insurers.
- Insurance against natural hazards is minimal not only in India but also Asia where less than 10% of the losses are typically covered. Government and insurers need to collaborate in providing greater coverage of losses from extreme weather events, including for calamities from brutal heat.

#### **A priority**

- India offers a range of food and fuel subsidies, but most of them are poorly targeted.
- For example, kerosene subsidies provide modest financial benefit to disadvantaged rural households, with only 26% of the subsidy value estimated to reach the poor directly.
- As the efficiency and the equity of existing subsidies are re-examined, the provision of transfers and insurance linked to building climate resilience should become a priority.

#### **THE HINDU**

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## La Nina and Heat wave

- In most years, meteorologists consider the La Nina to be a friend of India.
- The phenomenon associated with below normal sea surface temperatures in the eastern and central Pacific Ocean, makes the summer monsoon wetter and the winter colder unlike its evil twin, the El Nino, or a warming phenomenon that frequently dries up monsoon rains over India.
- This year, however, the La Nina is being blamed for worsening perhaps the longest spell of heatwaves from March to April in north, west and Central India.

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#### Periodic pattern

- Formally known as the El Nino Southern Oscillation (ENSO), the La Nina-El Nino phenomenon follows a periodic pattern that roughly lasts three years.
- During a La Nina winter, a north-south pressure pattern sets up over India and normally this influences the trade winds that bring rains to India.

- However, because the La Nina didn't peak, the sea surface temperatures continued to be cold and this drove hot westerly winds and blasts of hot air from the Middle East into Pakistan and India.
- "The north-south pressure pattern has been persisting over India, with La Nina extending its stay over the Pacific.
- This has definitely impacted the weather over India, which has been seen even during 1998-2000 when La Nina had persisted for three years.
- While land temperatures over India begin rising in March, they are usually punctuated by western disturbances, or moisture from the Mediterranean region that fall as rain over north and western India.
- For these currents to make it as far as India, they need a significant difference in temperature between Europe and the latitudes over India.
- "Partly due to La Nina, this temperature difference was absent and so the western disturbances that came to India were weak with hardly any rain,"

### THE HINDU

#### Symmetric body structure

- Having a vertebral column endows vertebrates with many similar

characteristics and one of these is a bilateral or left–right symmetry.

- For instance, if we draw an imaginary line dividing a vertebrate’s body from head to tail through the centre, we will see symmetrically placed eyes, limbs, etc.
- To ask how this symmetric body structure comes into being means going to the embryonic stage and see how the precursors of skeleton and muscles, known as somites, develop.
- A group of researchers studying zebrafish model embryos find that it is in fact surface tension that shapes these cells and not any genetic regulatory mechanism.

#### **THE HINDU**

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#### **L452R mutation**

- Mutations at position L452R was found in Delta along with Kappa and Epsilon, while variant Lambda had L452Q.
- These mutations have been previously reported to be associated with increased infectivity of the virus and also has the ability to evade neutralisation by monoclonal antibodies.
- Preliminary research shows that BA.4 and BA.5 lineages may be capable of escaping immunity gained by a previous BA.1 infection.

- Preliminary evidence emerging in a preprint from South Africa also suggests that vaccines are potentially better in protecting against infection as compared to previous infection with BA.1.
- More evidence is required to understand the clinical outcomes of the new lineages.
- The L452 mutations in the spike protein are not unique to BA.4 and BA.5 Omicron lineages but have also emerged independently in other Omicron sublineages in different countries.
- This includes the mutation L452Q in lineage BA.2.12.1, a sublineage of BA.2, which is recently seen to dominate COVID-19 cases in New York.

#### **THE HINDU**

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#### **Hearing loss and TBX2**

- Hearing loss due to aging, noise and certain cancer therapy drugs and antibiotics has been irreversible because scientists have not been able to reprogramme existing cells to develop into the outer and inner ear sensory cells essential for hearing once they die.
- The North-western Medicine scientists have now discovered a single master gene that programmes ear hair cells into either outer or

inner ones, overcoming a major hurdle that had prevented the development of these cells to restore hearing (Nature).

- The master gene switch Northwestern scientists discovered that programmes the ear hair cells is TBX2.
- When the gene is expressed, the cell becomes an inner hair cell. When the gene is blocked, the cell becomes an outer hair cell.

### **THE HINDU**

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#### **Pulsar**

- An object that astronomers thought was a distant galaxy has now been discovered as the brightest extragalactic pulsar ever seen.
- A pulsar (from pulsating radio source) is a highly magnetized rotating neutron star that emits beams of electromagnetic radiation out of its magnetic poles.
- This radiation can be observed only when a beam of emission is pointing toward Earth (similar to the way a lighthouse can be seen only when the light is pointed in the direction of an observer), and is responsible for the pulsed appearance of emission. Neutron stars are very dense and have short, regular rotational periods.

- This produces a very precise interval between pulses that ranges from milliseconds to seconds for an individual pulsar. Pulsars are one of the candidates for the source of ultra-high-energy cosmic rays.

### **THE HINDU**

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#### **Porcine virus**

- In January, a person in the United States became the first recipient of a pig-heart transplant.
- He died two months later, and doctors now say the genetically edited pig heart carried a porcine virus that could have contributed to his death.
- The main concern is that the virus can damage the heart.
- Porcine circovirus is a group of four single-stranded DNA viruses that are non-enveloped with an unsegmented circular genome.
- They are members of the genus Circovirus that can infect pigs.

### **THE HINDU**

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#### **Wheat crisis**

- On May 4, the government lowered its wheat production estimates by 5.7% to 105 million tonnes (MT) from the projected 111.32 MT for the crop year ending June.
- The production is expected to fall on account of unusually warm weather



conditions that persisted during March to April in most parts of the key grain-producing States of Punjab, Haryana, Madhya Pradesh as well as Uttar Pradesh.

### **Why has wheat production dwindled?**

- India is the second largest producer of wheat in the world, with China being the top producer and Russia the third largest. Ukraine is the world's eighth largest producer of wheat. Unprecedented heatwaves across the north, west and central parts of the country, and March and April being the hottest in over 100 years, have caused substantial loss to the yield at 6%, with 20% of the wheat grain shrivelling up.

### **How will this impact the public distribution of grain?**

- Wheat procurement is undertaken by the state-owned Food Corporation of India (FCI) and other agencies at MSP to meet the requirements under the Public Distribution System (PDS) and other welfare schemes such as the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) introduced during the pandemic.

- The government has revised the grain allocation under PMGKAY for May to September 2022.
- According to the new guidelines, the FCI will fill the gap left by wheat with an increased allocation of rice.
- An additional 5.5 MT rice is being allocated to the States to fill the gap in supplying wheat grain.

## **THE HINDU**

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### **Landmark Roe vs Wade case**

#### **The story so far:**

- The Supreme Court of the United States (SCOTUS) has privately voted to strike down the constitutional right to abortion as determined by the landmark Roe vs Wade case in 1973, according to a leaked draft opinion from February 2022.

#### **What is the Roe vs Wade case?**

- Roe, short for Jane Roe, is the pseudonym for a Texas woman named Norma McCorvey who in 1970 sought to have an abortion when she was five months pregnant, notwithstanding Texas' ban on abortions except to save a mother's life.
- Wade refers to Henry Wade, the district attorney in Dallas County, Texas, at the time, who was the defendant in the case.

- The 7-2 majority opinion of the SCOTUS was written on January 22, 1973, by Justice Harry Blackmun, paving the way for the recognition of abortion as a constitutional right in the U.S., effectively striking down a wide range of state-level abortion limitations applied before foetal viability.
- In 2016, NCDs accounted for 55% of premature death and disability in the country.
- Indians also have a disposition for excessive fat around the stomach and abdomen which leads to increased risk of cardiovascular disease and type 2 diabetes.

## **THE HINDU**

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### **Food labelling**

- The Food Safety and Standards Authority of India (FSSAI) is expected to issue a draft regulation for labels on front of food packets that will inform consumers if a product is high in salt, sugar and fat.
- It is expected to propose a system under which stars will be assigned to a product.
- An increased consumption of packaged and junk food has also led to a double burden of undernutrition and over nutrition among children.

### **Why is there opposition to the rating system?**

### **Why do we need front-of-package labelling?**

- In the past three decades, the country's disease patterns have shifted.
- While mortality due to communicable, maternal, neonatal, and nutritional diseases has declined and India's population is living longer, non-communicable diseases (NCDs) and injuries are increasingly contributing to the overall disease burden.
- In a health-star rating system, introduced in 2014 in Australia and New Zealand, a product is assigned a certain number of stars using a calculator designed to assess positive (e.g., fruit, nut, protein content, etc) and risk nutrients in food (calories, saturated fat, total sugar, sodium).
- Scientists have said that such a system misrepresents nutrition science and the presence of fruit in a fruit drink juice does not offset the impact of added sugar.

- Experts say that so far there is no evidence of the rating system impacting consumer behaviour.

**THE HINDU**

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## Indian judiciary

- Judicial corruption takes two forms: political interference in the judicial process by the legislative or executive branch, and bribery.
- A distinction between substantive and procedural justice is helpful.
- Substantive justice is associated with whether the statutes, case law and unwritten legal principles are morally justified (e.g., freedom to pursue any religion), while procedural justice is associated with fair and impartial decision procedures.
- Many outdated/ dysfunctional laws or statutes have not been repealed because of the tardiness of legal reform both at the Union and State government level
- Alongside procedural delays, endemic corruption and mounting shares of under-trial inmates with durations of three to five years point to stark failures of procedural justice and to some extent of substantive justice.

### Case pendency

- According to the National Judicial Data Grid, as of April 12, 2017, there are 24,186,566 pending cases in India's district courts, of which

2,317,448 (9.58%) have been pending for over 10 years, and 3,975,717 (16.44%) have been pending for between five and 10 years.

- As of December 31, 2015, there were 4,432 vacancies in the posts of [subordinate court] judicial officers, representing about 22% of the sanctioned strength.
- In the case of the High Courts, 458 of the 1,079 posts, representing 42% of the sanctioned strength, were vacant as of June 2016.
- Thus, severe backlogging and understaffing persisted, as also archaic and complex procedures of delivery of justice.

## THE HINDU

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## Universities

- Our once-great institutions of learning are beset by multiple crises a financial crunch at the university level, a deficit in research opportunities for faculty, poor infrastructure and learning outcomes for students; with any protests hit hard by police brutality and campus repression.

### Cash-strapped institutions

- Most Indian universities and colleges have overcrowded classrooms, poor

ventilation and sanitation, and unsatisfactory hostel accommodation.

- The Higher Education Financing Agency (HEFA), which provides funding for all infrastructure loans to institutions, saw its budget reduced from ₹2,000 crore in FY 20-21 to ₹1 crore in FY 21-22.
- The National Research Foundation (NRF), to improve research infrastructure in universities, has not yet been approved, and may have a limited budget (\$5-6 billion spread over five years).
- Clearly, funding for research needs to rise significantly, with institutions like the NRF supplementing (and not replacing) existing schemes (including those from the Ministry of Science)

### **Fall in standards**

- This delicate balance between the right to free expression and nationalism has been fostered across political regimes, with the leadership aware of the role of universities in strengthening democracy and civil society.
- We need to embrace tolerance for a diversity of views in our campuses our students have formative experiences there and must have the

space to define themselves as individuals.

- There are just eight Indian universities in the Top 500 in the QS World University Rankings.
- The National Education Policy (2020) has sought to foster critical thinking and problem solving, along with social, ethical and emotional capacities and dispositions.
- Enabling this will require an encouraging ecosystem, with greater funding, autonomy and tolerance of universities (and activities by students/faculty).
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### **THE HINDU**

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## **J & K Delimitation commission report**

- After multiple objections and extensions, the J&K Delimitation Commission submitted its final report on May 5, 2022, two years after it was appointed to redraw the electoral boundaries in Jammu and Kashmir as per the mandate set by the Jammu & Kashmir Reorganisation Act, 2019.

### **What is delimitation?**

- Delimitation is the process of redrawing boundaries of the Lok Sabha or Assembly constituencies, the Election Commission of India states.
- The process is carried out in accordance with changes in the demographic status of a State or Union Territory.
- Delimitation is done by a Delimitation Commission or Boundary Commission.
- The orders of the independent body cannot be questioned before any court.
- In the past, Delimitation Commissions were set up in 1952, 1963, 1973, and 2002.
- Before the abrogation of Article 370 that accorded a special status to J&K, delimitation of its Assembly seats was carried out by the Jammu and

Kashmir Constitution and the Jammu and Kashmir Representation of the People Act, 1957.

- The delimitation of Lok Sabha constituencies, meanwhile, was governed by the Constitution.

### **What is the J&K Delimitation Commission?**

- The last time a delimitation exercise was carried out in Jammu and Kashmir was in 1995, based on the 1981 Census. Jammu and Kashmir was under President's rule at that time.
- There was no Census in 1991 in J&K due to the tense situation in the valley. In 2001, the Jammu and Kashmir Assembly passed a law to put the delimitation process on hold till 2026.
- The Centre set up a Delimitation Commission in March 2020, six months after the State of Jammu and Kashmir was bifurcated and reorganised as the Union Territories of Jammu and Kashmir and Ladakh.
- The Commission, headed by retired Supreme Court judge Ranjana Prakash Desai, was tasked with delimiting the Assembly and Lok Sabha constituencies in the UT of J&K based on the 2011 Census and in accordance with the provisions of the Jammu and Kashmir

Reorganisation Act, 2019 and the Delimitation Act, 2002.

### **What are the key takeaways from the final report?**

- First, J&K is split into two divisions, with Jammu having 37 Assembly seats and Kashmir 46. After the Commission's final draft, six additional Assembly seats are earmarked for Jammu (revised to 43) and one for Kashmir (revised to 47).
- The total number of Assembly seats in the UT will increase from 83 to 90.
- Second, the Commission has recommended the Centre to nominate at least two Kashmiri Pandits to the Legislative Assembly.
- Third, the panel has proposed nine seats for the Scheduled Tribes (STs).
- Seven seats have been reserved for the Scheduled Castes (SCs) in the Jammu region.
- Fourth, the Commission has also recommended that the government consider giving displaced persons from Pakistan-occupied Jammu and Kashmir representation in the Assembly through nomination.
- Fifth, in its final order, the Commission has noted that it has considered the "Jammu & Kashmir region as one single Union Territory", and merged Rajouri and Poonch (from Jammu division) with

the Anantnag constituency in the Kashmir region. The new constituency has been renamed as Kishtwar-Rajouri.

- Sixth, the Commission has said it renamed 13 constituencies considering public sentiment in the region.
- The final order of the Delimitation Commission for Jammu and Kashmir holds a lot of political significance.
- The completion of the delimitation exercise will pave the way for Assembly elections a crucial step in the possible restoration of statehood for Jammu and Kashmir.
- The Commission has added seven more Assembly seats, keeping the 2011 census as the basis.
- With this, Jammu with a population of 53 lakh (43% of the total population of 122 crore) will have 47% seats, while Kashmir which has a population of 68 lakh (56%) will have 52% of the seat
- The new constituency has five ST Assembly segments from the Jammu region.
- In J&K, Gujjar and Bakarwals form the ST community which is 11.9% of the total population, as per the 2011 census.

### **THE HINDU**

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## Changes in Northern Ireland

### The story so far:

- Northern Ireland came into existence in 1921 when Ireland was partitioned by the Government of Ireland Act, 1920 passed by the British parliament.
- Sectarian tensions between the Protestants and Catholics led to a 30-year period of militant strife, called The Troubles, which began in the late 1960s and continued until the signing of the Good Friday Agreement in 1998.



- Sinn Féin, since 1921, never won a decisive vote.
- This changed on May 7, 2022 as it was declared that Sinn Féin had won 27 seats out of 90 or 29% of the preference vote, while its closest unionist competitor, the Democratic Unionist Party (DUP), dropped its seat tally to 25.



### When did the Good Friday Agreement come into existence?

- The Good Friday Agreement came into existence in April 1998.
- It was constructed in a manner that would be favourable to the rights and political representation of both Protestant and Catholic communities in Northern Ireland with the aim to eliminate violence.
- The Agreement recognised the legitimacy of both republican and loyalist demands and institutionalised a system of devolved government, power-sharing and elections to the unicameral local assembly (called Stormont) using the principle of Single Transferable Vote to ensure proportional representation.

### How did Brexit impact the electoral results in Northern Ireland?

- Britain's messy divorce from the European Union (EU), better known as Brexit, impacted relations



between Northern Ireland and the U.K.

- In 2019, the U.K. and the EU agreed to the Northern Irish Protocol wherein a trade-and-customs sea border was created between Northern Ireland and the rest of the U.K.
- Further, the rationale for the Protocol was that establishing a trade-and-customs border on the island between North and South was a sure way to stoke nationalist ire that could undermine the Good Friday Agreement commitment to peace and consociationalism
- In the assembly elections that have recently concluded, it is clear that the Protocol led to shifts in the voting patterns as it became one of the many points of polarisation in Northern Ireland.
- The parties in favour of the Protocol, like Sinn Féin, improved their vote counts.

#### **Semi common approach to data governance**

- The Internet and its data lie in the hands of very large tech companies. The ownership of data has become the currency of the future.

#### **Platform capitalists**

- A handful of 'platform capitalists' now control the Internet. Platform capitalists are those who take advantage of their first mover privilege by rapidly expanding across the digital landscape.
- They then offer themselves as a platform for third party players for a price (Meta, Amazon, Microsoft, etc.).
- These companies retain and expand their control through data accumulation and extraction.
- The importance of data accumulation in the digital economy cannot be overstated.
- With the advent of the Internet of Things (IoT), 'smart' devices and related technologies, the possibility of data goes beyond that of the virtual to even the physical and social.
- Control over such data can even predict behavioural patterns. Platform capitalists have unbridled control over the data economy leading to exclusion and under-optimisation of the data for common good
- State regulators have been trying to find a solution to better re-distribute and govern data structures.
- Another approach is that of data stewardship.

- Data stewardship “refers to any institutional arrangement where a group of people come together to pool their data and put in place a collective governance process for determining who has access to this data, under what conditions, and to whose benefit.”
- It can also take the model of a public-private partnership where private data can be used for governance issues and policies.
- The EU’s proposal for “data altruism organisations” which will enable the pooling of non-personal data for non-profit, “general interest” purposes and the World Economic Forum’s ‘Data for Common Purpose’ initiative are plausible examples of such an arrangement.
- By creating such privacy-focused data forums, the goal is to increase data-based value creation for optimum use.
- An ideal data governance structure should prevent the possessors of the syntactic and physical layers from having exclusive rights over the semantic layer.
- A semi-commons approach to data governance seeks to balance public and private claims to data.
- It fundamentally recognises data as social commons where first movers do not get exclusive rights.

#### **Data holders and seekers**

- Data holders be it private, public, or altruistic organisations can only have non-exclusive rights over the base layer of data (raw non-processed data).
  - They can use and generate profit through it but are required to share data as other data seekers are entitled to accessibility in a semi-commons approach.
  - Data seekers can have access to raw non-personal data and aggregate non-personal data (after due safeguards are met for irreversible anonymisation).
  - Furthermore, a semi-commons approach would help foster data-driven solutions and innovation in sectors which desperately need it.
  - For example, NITI Aayog had commented that the agriculture
- The semi-commons approach**
- Data has three layers. The semantic layer which has the encoded information. The syntactic layer which represents the information as machine-readable datasets and the physical layer which is the infrastructure through which one extracts data.

sector, which desperately needs more data-driven innovation

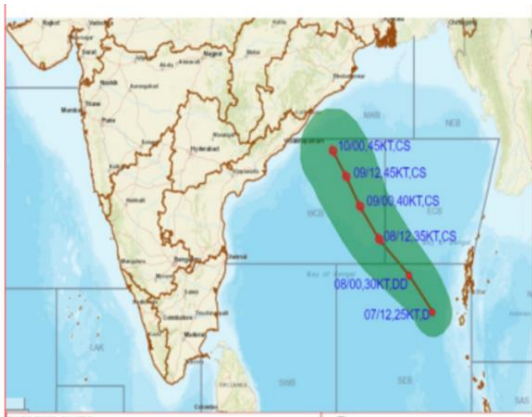
- Therefore, a semi-commons approach, in order to be actualised, calls for a thorough change of perspective wherein data should not be thought of the exclusive property of one person or company but a form of social commons which needs to be properly regulated and redistributed.

**THE HINDU**

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GES  
REPORTER

## Asani-Naming of cyclone



- Severe cyclonic storm 'Asani', which is moving towards the east coast, packing winds above 105 kmph and setting off heavy rain, is likely to recurve in a north-eastward direction and weaken gradually into a cyclonic storm, the India Meteorological Department (IMD) said on Monday.
- According to the IMD, the storm, lying over west-central and adjoining South Bay of Bengal, moved nearly north-westwards with a speed of 16 kmph in six hours and lay centred over west-central Bay of Bengal.
- It is the first cyclonic storm of the season and was named by Sri Lanka.
- Asani means "wrath" in Sinhalese. A list of names for cyclones was released in 2020 with 169 names, including 13 names each from 13 countries
- The cyclone that will form after Asani will be called Sitrang, and the name has been given by Thailand.
- Ghurni, Probaho, Jhar and Murasu are the upcoming names from India.
- Other cyclonic storms' names include Biparjoy (Bangladesh), Asif (Saudi Arabia), Diksam (Yemen) and Toofan (Iran) and Shakhti (Sri Lanka)
- There is a process behind each cyclone's naming process. There are six Regional Specialised Meteorological Centres (RSMCs) worldwide and five regional Tropical Cyclone Warning Centres, which are mandated for issuing advisories and naming of cyclonic storms.
- The list is arranged according to names given by alphabetically-arranged countries that are neutral to gender, politics, religious beliefs and cultures. It is used sequentially, column wise.
- The designation should not be present in the existing list of the six RSMCs. The name of a storm that may pass on from one waterbody to another will not be changed.



- The name is never re-used again. All the names that are used can have a maximum eight-letters and should not offend any country or group of people or customs.
- The naming of cyclones in the Bay of Bengal and Arabian Sea started in September 2004.
- Before this, from the mid-1900s, feminine names were picked up for storms before switching to a list for a better organised process.

## **THE HINDU**

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### **Power crisis**

- Under the Electricity Act, it is the responsibility of the Distribution Licensee/Company (Discom) to provide reliable quality and round-the-clock electricity to all consumers to meet full demand.
  - To do so, they enter into contracts with a number of generating companies in order to ensure adequate supply.
  - These Discoms work under the oversight of the State Electricity Regulatory Commissions.
  - With higher incomes and the consequent increase in the use of air-conditioners and other electrical appliances, the nature of electricity demand is undergoing a qualitative transformation with rising daily and seasonal peaks, and spikes on very hot or cold days.
- ### **Towards reliable supply**
- Whether Discoms have been making and updating their demand growth projections and scenarios over the medium term with adequate supply arrangements in a robust manner.
  - And whether State Regulatory Commissions have been demanding these and scrutinising them transparently.
  - This needs to become central to the regulatory process. Ensuring reliable supply to meet unanticipated peaks, as have occurred now, requires making supply arrangements with reserve margins that are adequate.
  - The Regulatory Commissions need to provide for such expensive peaking power arrangements in the tariffs they approve.
  - It is also time to move towards separate peaking power procurement contracts in addition to the present system of long-term thermal power contracts
  - Peak demand moderation and flattening of the demand curve through a change in consumer behaviour is feasible with smart meters.
  - But this would take place only with a strong price signal, a large

differential in peak and off-peak rates.

### **Subsidies and politics**

- Free supply of electricity to farmers and households up to a specified level is not a problem as long as State governments pay for it as provided in the Act, and the Regulatory Commissions do not at the same time act from a political point of view and shy away from determining cost-reflective tariffs.
- The problem is the absence of meaningful political discussion on the relative benefits from subsidies in different areas and their affordability.
- While the problem of delayed payments by Discoms is getting highlighted and needs to be resolved with a sense of urgency, the coal supply problem is not due to this.
- Coal India is not short of cash to be able to increase production. It should do so faster.
- Coal India needs to create capacities to rapidly ramp up production; and the Railways need to carry larger quantities of coal when demand surges, as has happened now.
- Extreme weather events will increase in intensity and frequency due to climate change.

### **Some solutions**

- There is idle but expensive generating capacity available about 15- 20 GW of gas-based power plants which can run on imported liquefied natural gas, and 6 GW-8 GW of thermal plants which can run on imported coal.
- The exercise of the option of buying electricity from these plants and having no power cuts would provide immediate relief.
- But where an across-the board increase in rates may not appear feasible, consumers who are willing to pay more could be kept free of power cuts with purchase and supply of more expensive electricity generated from imported coal and gas.

### **THE HINDU**

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#### **India and Germany**

- Its significant reliance on Russian gas and crude notwithstanding, condemnation of Moscow's moves in Ukraine is near unanimous in Europe.
- India's role as a major power and largest democracy are being brought to the forefront and there is a growing expectation that India needs to make a shift from its position on Russia and join hands

with the European countries and the U.S. in protecting democracy in need

- New Delhi has chosen to prioritise its interests over pursuing a policy that is shaped by common democratic values that define Germany, Japan and India.

### **The China factor**

- The geopolitical convergence of countering the rise of China particularly in the IndoPacific seems to be a more compelling necessity rather than the ideational and normative aspects of protecting democratic norms and values.
- Engagement with Europe
- India makes it clear that irrespective of its position on a solitary issue of geopolitical relevance, which the former may find difficult to reconcile with, the bilateral engagement with countries such as Germany, France and Denmark remains at the top of its priority
- Towards this direction, the holding of the sixth India-Germany Inter-Governmental Consultations (IGC), a biennial format which India conducts with Germany, assumed critical importance.
- India attaches significant importance to the 'long-standing commercial ties' with Germany, an important pillar of the 'Strategic Partnership',

which the two nations entered into in 2000.

- The idea, therefore, is to highlight a convergence of issues of economics, technology and climate change (low hanging fruits), in spite of the intensifying dissonance on democratic and strategic issues. That remains the crux of the Indian approach.

### **Room for full ties**

- It remains a fact that India-Germany relations have yet to achieve their full potential. One of the factors for that, possibly, is the lack of understanding of each other's strategic cultures and domestic politics and strategic communication.
- Germany has invited Mr. Modi to the G-7 meeting in June this year, construed as a bid to wean India away from its position on Russia.
- However, while the attempt may not be successful, it is certainly a pointer to the emerging multipolarity in the international system, which provides space for major powers such as Germany and India to play a greater role in bringing peace and stability in other theatres, particularly in Afghanistan and the IndoPacific.

### **THE HINDU**

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### Emigrant bill

- According to the Ministry of External Affairs, there are over 13.4 million Non-Resident Indians worldwide.
- Of them, 64% live in the Gulf Cooperation Council (GCC) countries, the highest being in the United Arab Emirates, followed by Saudi Arabia and Kuwait.
- Almost 90% of the Indian migrants who live in GCC countries are low- and semi-skilled workers, as per International Labour Organization estimates. Other significant countries of destination for overseas Indians are the U.S., the U.K., Australia, and Canada.

### High remittances

- Every year, about 2.5 million workers from India move to different parts of the world on employment visas.
- Besides being involved in nation-building of their destination countries, Indian migrant workers also contribute to the homeland's socioeconomic development, through remittances.
- According to a report by the National Statistical Office, urban and rural households receiving remittances (both international and domestic) have approximately 23% and 8% better financial capacity,

respectively, than non-remittance-receiving households.

- As per a World Bank Group report (2021), annual remittances transferred to India are estimated to be \$87 billion, which is the highest in the world, followed by China (\$53 billion), Mexico (\$53 billion), the Philippines (\$36 billion) and Egypt (\$33 billion).
- In 2021, remittances transferred to India had seen an increase of 4.6% compared to 2020.
- Remittances in India have been substantially higher than even Foreign Direct Investment (FDI) and the flow of remittances is much less fluctuating than that of FDI.
- The safety and well-being of migrant labour is of top priority for the government.
- Reducing informal/undocumented migration and formalising all remittances is being given due focus.
- Recruitment agencies should also be regulated leveraging information technology for ensuring protection of migrant workers leaving India.
- An integrated grievance redressal portal, 'Madad', was launched by the government in 2015



### Provisions of the Emigration Bill

- The Indian government proposed a new Emigration Bill in 2021 which aims to integrate emigration management and streamline the welfare of emigrant workers.
- It proposes to modify the system of Emigration Check Required (ECR) category of workers applying for migration to 18 notified countries.
- The ECR category mainly comprises those who have not passed Class 10 and face the challenge of risky informal emigration and subsequent hardships abroad.
- The Bill makes it mandatory for all category of workers to register before departure to any country in the world to ensure better protection for them, support and safeguard in case of vulnerabilities.
- The proposed Emigration Management Authority will be the overarching authority to provide policy guidance.
- The number of migrant workers need not go up for remittances to increase if the skill sets of workers are improved.
- Provisions of the Bill such as registration of all emigrants, skill upgradation and training, and pre-departure orientation will enhance protection measures. Besides workers, as about 0.5 million

students also migrate for education from India every year, the Bill also covers such students.

- This will provide a comprehensive data set for the efficient management of Indian migrants.
- Skilling of migrant workers has the potential to boost the domestic economy and low-cost interventions such as foreign language training can be of great help for such workers.

### THE HINDU

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#### Search algorithm

- An algorithm, essentially, is a series of instructions.
- Tech giant Alphabet Inc's Google, whose flagship product is the Google search engine, is the dominant player in the search market.
- Algorithms are often built using historical data and for specific functions.
- Once developed, they go through frequent updates from companies for quality enhancement.
- Any changes or updates in their algorithms could also mean that traffic is steered away from certain sites and businesses, which could have a negative effect on their revenue.
- Firms can use these algorithms to change the way they rank products

on websites, prioritising their own products and excluding competitors. Some of these concerns have caught the eye of regulators.

### What are the concerns?

- The search giant's trackers have allegedly been found on majority of the top million websites, as per a DuckDuckGo blog post. "This means they are not only tracking what you search for, [but] they're also tracking which websites you visit, and using all your data for ads that follow you around the internet," it added.
- According to a Council of Europe study, the use of data from profiles, including those established based on data collected by search algorithms and search engines, directly affects the right to a person's informational self-determination.
- Most of Google's revenues stem from advertisements, such as those it shows consumers in response to a search query.

## THE HINDU

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### W boson

- On April 7, researchers from Collider Detector at Fermilab (CDF) Collaboration, in the U.S., announced that they have made a precise measurement of the mass of the W boson.

- They stated that this precisely determined value did not match with the estimates from the standard model of particle physics.
- The recent experiment which measured the mass of the W boson as  $80,433.5 \pm 9.4 \text{ MeV}/c^2$  is more than what is expected from the standard model.
- The expected value using the standard model is  $80,357 \pm 8 \text{ MeV}/c^2$ . This implies the incompleteness of the standard model description.
- This mass discrepancy of the W boson needs to be checked and confirmed to the same accuracy by other research facilities.
- About Boson
  - In particle physics, a boson is a subatomic particle whose spin quantum number has an integer value (0,1,2 ...).
  - Bosons form one of the two fundamental classes of subatomic particle, the other being fermions.
  - In particle physics, the W and Z bosons are vector bosons that are together known as the weak bosons or more generally as the intermediate vector bosons. In particle physics, a vector boson is a boson whose spin equals one.

- These elementary particles mediate the weak interaction; the respective symbols are  $W^+$ ,  $W^-$ , and  $Z^0$
- The  $W^\pm$  bosons have either a positive or negative electric charge of 1 elementary charge and are each other's antiparticles. The  $Z^0$  boson is electrically neutral and is its own antiparticle. The three particles each have a spin of 1.
- All three of these particles are very short-lived, with a half-life of about  $3 \times 10^{-25}$  s.
- The W bosons had already been named, and the Z bosons were named for having zero electric charge.

**THE HINDU**

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## Inflation

- The recent action of the Reserve Bank of India (RBI) to raise the repo rate by 40 basis points and cash reserve ratio (CRR) by 50 basis points is a recognition of the serious situation with respect to inflation in our country and the resolve to tackle inflation.
- After the advent of COVID-19, the major concern of policymakers all over the world was to revive demand. This was sought to be achieved by raising government expenditure.
- Initially, the focus of monetary policy in India has been to keep the interest rate low and increase the availability of liquidity through various channels, some of which have been newly introduced
- While discussing inflation, analysts including policymakers focus almost exclusively on the increases in the prices of individual commodities such as crude oil as the primary cause of inflation. The Russian-Ukraine war is cited as a primary cause.
- True, in many situations including the current one, they may be the triggers.
- Supply disruptions due to domestic or external factors may explain the

behaviour of individual prices but not the general price level which is what inflation is about.

## Inflation and growth

- The possible trade-off between inflation and growth has a long history in economic literature.
- The Phillip's curve has been analysed theoretically and empirically.
- The Phillips curve is an economic concept developed by A. W. Phillips stating that inflation and unemployment have a stable and inverse relationship
- Tobin called the Phillip's curve a 'cruel dilemma' because it suggested that full employment was not compatible with price stability.
- The critical question flowing from these discussions on trade-off is whether cost-push factors can by themselves generate inflation.
- Tobin said at one place that inflation 'is neither demand-pull nor cost-push or rather it is both.
- Inflation in India cannot be described just as 'cost-push'. Abundance of liquidity has been an important factor
- If we want to control inflation, action on liquidity is very much needed with a concomitant rise in the interest rate on deposits and loans.

## Food labelling

- The classification of foods, as healthy or unhealthy, is a technical or professional step.
- This should be decided by a governance body such as the FSSAI or food and nutrition experts or professionals.
- The consumption of junk foods that are high in calories, sugar, fat and salt lead to the early onset of obesity among adolescents, insulin insufficiency, and in adulthood results in diabetes, hypertension, cardiac and renal diseases.
- The World Health Organization (WHO) has issued a threshold for sugar, salt, fat, and calories per 100 grams of processed food packaged or 100 ml of liquid beverages bottled.
- Unless we generate competing technical data for the Indian population, we have to abide by WHO norms.
- A technical group set up by the FSSAI has undertaken an evaluation of processed foods on the racks of Indian supermarkets and found 96% of products for one component and 62.8% for three components are above WHO threshold, it would be ideal to provide the crystallised

information in the best acceptable way for consumption and leave it open for the consumer to decide. We have done it with tobacco packs and alcohol bottles

- Its decision to stick to a Health Star Rating based on an algorithm known to the food industry only, as a front of pack labelling, is without sound logic or evidence.
- Publisher-platform relationship- canada law
- On April 5, the Canadian government introduced a Bill that seeks to make Internet platforms such as Google and Facebook pay news publishers for use of their content.

### What is the idea behind it?

- The Bill seeks to regulate digital news intermediaries, its summary says, “to enhance fairness in the Canadian digital news marketplace and contribute to its sustainability.”
- The government website lists four expected outcomes of the legislation.
- They include a framework that supports “fair business relationships between digital platforms and news outlets,” sustainability in the news ecosystem, maintenance of press independence, and diversity within the news landscape.

- The genesis of this was a 2019 report by the Australian Competition and Consumer Commission, the country's regulator, which saw platforms such as Google and Facebook as having "substantial bargaining power in relation to many news media businesses."
- Google and Facebook provide much of the traffic for a lot of traditional news publishers.
- The platforms play a major role in news discovery.
- But it is now acknowledged all over the world that the platforms are able to make much of the money from this arrangement while publishers struggle.
- The publishers also have to contend with frequent changes to the platform algorithm, which comes with the real threat of them losing a large amount of readers all of a sudden.

#### **How have platforms reacted to the Bill?**

- Google says that the company has "serious concerns about some unintended consequences the proposed Online News Act will have on news in Canada and the search experience that Canadians know and trust."

- The paper said Google "appears to be taking a different tack than Facebook's parent company Meta by reaching out to the government."

### **THE HINDU**

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#### **Global study on birds**

##### **The story so far:**

- The State of the World's Birds, an annual review of environmental resources published on May 5 by nine natural sciences and avian specialists across the globe, has revealed that the population of 48% of the 10,994 surviving species of birds is declining.
- The report led by the Manchester Metropolitan University gives an overview of the changes in the knowledge of avian biodiversity and the extent to which it is imperilled.

##### **What are the key findings of the study?**

- The study found that 5,245 or about 48% of the existing bird species worldwide are known or suspected to be undergoing population declines.
- While 4,295 or 39% of the species have stable trends, about 7% or 778 species have increasing population trends shows 1,481 or 13.5% species

are currently threatened with global extinction.

- These include 798 species classified as vulnerable, 460 as endangered and 223 as critically endangered while 52 species were considered to be data deficient.
- About 73% species are estimated to have fewer than 10,000 mature individuals, 40% have fewer than 2,500 mature individuals, and almost 5% have fewer than 50 mature individual.
- The more threatened bird species (86.4%) are found in tropical than in temperate latitudes (31.7%), with hotspots for threatened species concentrated in the tropical Andes, southeast Brazil, eastern Himalayas, eastern Madagascar, and Southeast Asian islands.

### **What is the importance of birds to ecosystems and culture?**

- Birds contribute toward many ecosystem services that either directly or indirectly benefit humanity.
- These include provisioning, regulating, cultural, and supporting services.
- The functional role of birds within ecosystems as pollinators, seed-dispersers, ecosystem engineers, scavengers and predators not only

facilitate accrual and maintenance of biodiversity but also support human endeavours such as sustainable agriculture via pest control besides aiding other animals to multiply.

- For instance, coral reef fish productivity has been shown to increase as seabird colonies recovered following rat eradication in the Chagos archipelago.
- Wild birds and products derived from them are also economically important as food (meat, eggs).
- Approximately 45% of all extant bird species are used in some way by people, primarily as pets (37%) and for food (14%).
- The cultural role of birds is perhaps more important than any other taxonomic group, the study says. Beyond its symbolic and artistic values, birdwatching is a global pastime practised by millions of people.
- Garden bird-feeding is valued at \$5-6 billion per year and growing by four per cent annually.

### **What are the threats contributing to avian biodiversity loss?**

- The study lists eight factors, topped by land cover and land-use change.
- The continued growth of human populations and of per capita rates of consumption lead directly to

conversion and degradation of primary natural habitats and consequent loss of biodiversity.

- The other factors are habitat fragmentation and degradation, especially in the tropics; hunting and trapping with 11 to 36 million birds estimated to be killed or taken illegally in the Mediterranean region alone; the impact of invasive alien species and disease (971 alien bird species introduced accidentally or deliberately to 230 countries over the centuries have affected the native species); infrastructure, energy demands and pollution; agrochemical and pharmaceutical usage (pesticide ingestion kills an estimated 2.7 million birds annually in Canada alone); global trade teleconnections; and climate change.
- Emerging concepts of conservation social science can inform efforts to address biodiversity loss and to achieve more effective and sustainable conservation outcomes, linking birds to human well-being, sustainability, climate resilience, and environmental justice.

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## **PIN**

- Pandit Shivkumar Sharma, the maestro who etched an image of the Kashmir Valley and a sound of spirituality every time he struck a chord on his santoor.
- A symbol of the Shaivite and Sufi tradition of Jammu and Kashmir, the Padma Vibhushan awardee toiled to make the folk instrument acceptable on the classical firmament.

**THE HINDU**

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## Northern Ireland protocol

- The deal - known as the Northern Ireland Protocol - was part of the UK's Brexit Withdrawal Agreement with the EU. Under its terms, checks are required on goods entering Northern Ireland from the rest of the UK.
- The protocol has been a source of tension since it came into force at the start of 2021, not only between the UK and the EU, but also among unionists in Northern Ireland, who say it represents a threat to their place within the UK.
- Before Brexit, it was easy to transport goods across this border because both sides automatically followed the same EU trade rules, which meant no checks or paperwork were necessary.
- After Brexit, a new system was needed because the EU has strict food rules and requires border checks when certain goods, such as milk and eggs, arrive from non-EU countries.

### How checks between Britain and Northern Ireland work

Certain goods, such as meat and eggs, need to be checked when they enter Northern Ireland from Great Britain



### How did the Northern Ireland Protocol come about?

- Special arrangements were needed for Northern Ireland after the UK voted for Brexit in 2016. This is because it is the only part of the UK

THE HINDU

FCRA

- The Supreme Court asked the government why the Ministry of Home Affairs (MHA) has been tasked to keep an eye on the inflow and subsequent outflow of foreign funds to NGOs under the foreign contributions regulations law.
- Intelligence Bureau (IB) inputs have shown that foreign funds entering India were used to fund activities that destabilise national peace and security.
- The inputs even indicated that the money was used to train naxals.

- “There is an element of national security, integrity of the nation involved here.
- A summary of key amendments brought in by the FCRA Amendment Act is provided below.
- Prohibition on receiving Foreign Contribution: 3(1) of the FCRA sets out a list of persons who are prohibited from receiving any kind of foreign contribution, including inter alia, election candidates, correspondent, columnist, cartoonist, editor, owner, or publisher of a registered newspaper, judges, government servants, employees of governmental corporation, members of any legislature and political parties, entities engaged in the production or broadcast of news or current affairs. The FCRA Amendment Act has amended this section and added "public servants".
- Transfer of foreign contributions: Previously under §7 of the FCRA, foreign contribution could be transferred only to those persons who were registered or had obtained a prior permission under the FCRA to obtain foreign contribution.
- Requirement of Aadhaar: The FCRA Amendment Act has added a new provision which provides that the Central Government may require persons seeking registration/prior permission/renewal to also provide Aadhaar number of all office bearers, directors, key functionaries, or provide copies of passport or the Overseas Citizen of India card, for foreigners.
- The FCRA Amendment Act has amended §17 and provided that foreign contribution can only be received in an account designated as "FCRA account", opened with the prescribed branch of the State Bank of India New Delhi.
- Restriction on utilisation of funds: Previously, 8 of the FCRA stipulated a maximum cap of 50% on the percentage of foreign contribution that may be utilised towards administrative expenses.
- It is relevant to note that 'administrative expenses' are defined to include salaries, wages, travel expenses, expenses incurred towards hiring of personnel, consumables like water/electricity, telephone charges, postal charges, charges towards rent and repair of premises, costs associated with running of office and vehicles, costs incurred towards legal and professional fees etc.
- The FCRA Amendment Act has reduced this limit by amending §8 of

the FCRA. The provision now states that spends of foreign contribution towards administrative expenses shall be restricted to an upper limit of 20%.

## **THE HINDU**

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### **Shallow and deep Ecologism**

- The fashionable fight against pollution and resource depletion is shallow Ecologism. Exponents of this philosophy believe in continuing our present lifestyle, but with specific tweaks aimed at minimising the damage to the environment.
- The concepts emerged in the 1970s, when Norwegian philosopher Arne Næssq sought to look beyond the popular pollution and conservation movements of his milieu to address environmental degradation
- Deep ecologism believes that humans should radically change their relationship with nature. Its proponents reject shallow ecologism for prioritising humans above other forms of life, and subsequently preserving the environmentally destructive way of life in modern societies.

## **THE HINDU**

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### **Suspension of sedition law**

- The Supreme Court has effectively suspended the operation of the sedition provision in the country's penal law.
- "All pending trials, appeals and proceedings with respect to the charge framed under Section 124A be kept in abeyance", it has said in an order that will bring some welcome relief to those calling for the abrogation of Section 124A of the IPC, which criminalises any speech, writing or representation that "excites disaffection against the government".
- The Court has recorded its hope and expectation that governments at the Centre and the States will refrain from registering any fresh case of sedition under Section 124A of the IPC, or continuing with any investigation or taking any coercive measure under it.
- The hope and the expectation arise from the Union government's own submission that it has decided to re-examine and reconsider the provision as part of the Prime Minister's efforts to scrap outdated laws and compliance burdens.
- The Court has given liberty to the people to approach the jurisdiction courts if any fresh case is registered for sedition and cite in their support

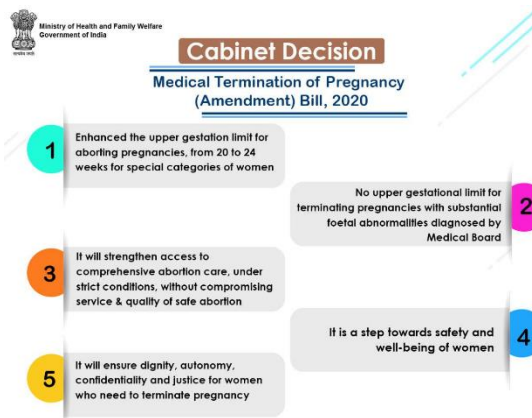
the present order, as well as the Union government's stand.

- A 1962 Constitution Bench of the Supreme Court on what constitutes sedition. The Court had upheld the section only by reading it down to mean that it is applicable only to "acts involving intention or tendency to create disorder, or disturbance of law and order, or incitement to violence".
- In practice, the police have been using the broad definition of sedition to book anyone who criticised the Government in strong and strident language.
- The question now before the Court is whether it ought to overrule a decision rendered by a five-judge Bench 60 years ago.
- If it chooses to do so, and strikes down Section 124A as an unconstitutional restriction on free speech, it may help the larger cause of preventing misuse of provisions relating to speech based offences.
- However, the Government may choose to prevent such a situation by amending it so that the offence is narrowly defined to cover only acts that affect the sovereignty, integrity and security of the state, as reportedly recommended by a panel of experts.

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### MTP act

- The MTP Act of 1971 was framed in the context of reducing the maternal mortality ratio due to unsafe abortions.
- It allows an unwanted pregnancy to be terminated up to 20 weeks of pregnancy and requires a second doctor's approval if the pregnancy is beyond 12 weeks.
- Further, it only allows termination when there is a grave risk to the physical or mental health of the woman or if the pregnancy results from a sex crime such as rape or intercourse with a mentally challenged woman.



## THE HINDU



## Finland to join NATO

- Finland's leaders on Thursday came out in favour of applying to join NATO, and Sweden could do the same within days, in a historic realignment
- The Kremlin reacted by warning it will be forced to take retaliatory "military technical" steps
- The Nordic Council is an official body which facilitates inter-parliamentary cooperation between the Nordic nations of Sweden, Denmark, Finland, Norway and Iceland as well as from the autonomous areas of the Faroe Islands, Greenland, and the Åland Islands. Its headquarters is located in Copenhagen, Denmark.

### About NATO

- The North Atlantic Treaty Organization also called the North Atlantic Alliance, is an intergovernmental military alliance between 30 member states 28 European states, the United States, and Canada.
- NATO is a system of collective security: its independent member states agree to defend each other against attacks by third parties. It was established during the Cold War

in response to the threat posed by the Soviet Union.

- The alliance remained in place after the dissolution of the Soviet Union, and has been involved in military operations in the Balkans, the Middle East, South Asia, and Africa.
- The NATO headquarters is located in Brussels, Belgium, while the headquarters of Allied Command Operations is near Mons, Belgium. The organization's motto is "animus in consulendo liber" (Latin for "A mind unfettered in deliberation").

## THE HINDU

### Sagittarius A\* (SgrA\*)

- Scientists from the Event Horizon Telescope (EHT) facility, at press conferences held simultaneously at several centres around the world, revealed the first image of the black hole at the centre of the Milky Way.
- The image of Sagittarius A\* (SgrA\*) gave further support to the idea that the compact object at the centre of our galaxy is indeed a black hole, strengthening Einstein's general theory of relativity.
- In 2019, the Event Horizon Telescope facility, a collaboration of over 300 researchers, made history by releasing the first-ever image of a black hole, M87\* the black hole at

the centre of a galaxy Messier 87, which is a supergiant elliptic galaxy.



### About Black hole

- A black hole is a location in space with a gravitational pull so strong that nothing, not even light, can escape it.
- A black hole's outer edge, called its event horizon, defines the spherical boundary where the velocity needed to escape exceeds the speed of light.
- Matter and radiation fall in, but they can't get out. Because not even light can escape, a black hole is literally black.
- Contrary to their name's implication, black holes are not empty. In fact, a black hole contains a great amount of matter packed into a relatively small space.
- Black holes come in various sizes and can exist throughout space.

### The event horizon

- The event horizon of a black hole is linked to the object's escape velocity

the speed that one would need to exceed to escape the black hole's gravitational pull.

- The closer someone came to a black hole, the greater the speed they would need to escape that massive gravity.
- The event horizon is the threshold around the black hole where the escape velocity surpasses the speed of light.

### THE HINDU

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### Question of notifying minorities

#### The story so far:

- A public interest litigation (PIL) under the consideration of the Supreme Court of India challenges the power of the Centre to notify minority communities at a national level.

#### Who is a minority and who decides that?

- The PIL specifically questions the validity of Section 2(f) of the National Commission for Minority Educational Institutions or NCMEI Act 2004, terming it arbitrary and contrary to Articles 14, 15, 21, 29 and 30 of the Constitution.
- Section 2(f) says "minority, "for the purpose of this Act, means a community notified as such by the

Central Government.” Section 2(c) of the of National Commission for Minorities (NCM) Act, 1992 also gives the Centre similar powers.

### What does the PIL argue?

- The petitioner argues that the Centre’s decision was arbitrary since the SC had held, in the T. M. A. Pai Foundation vs State Of Karnataka case of 2002 that, “for the purpose of determining minority, the unit will be State and not whole India.”
- The petitioner argued that the Centre’s notification has created an anomalous situation in which the communities declared as minorities by the Centre enjoy the status even in States/UTs where they are in majority (Muslims in Jammu and Kashmir and Christians in Nagaland for instance) while followers of Hinduism, Judaism and Bahaism who are minorities are not accorded the same status under the Act.
- The petition seeks the SC to curtail the Centre’s power to notify national minorities or direct the Centre to notify followers of Hinduism, Bahaism and Judaism as minorities in States/UTs where they are actually fewer in numbers; or direct that only those communities that are “socially, economically and politically non-dominant” besides

being numerically smaller in States/UTs be allowed the status of minorities.

## THE HINDU

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### India Hypertension Control Initiative (IHCI)

- The story so far: A project called the India Hypertension Control Initiative (IHCI) finds that nearly 23% out of 2.1 million Indians have uncontrolled blood pressure.

### What is the IHCI?

- Recognising that hypertension is a serious, and growing, health issue in India, the Health Ministry, the Indian Council of Medical Research, State Governments, and WHO-India began a five-year initiative to monitor and treat hypertension.
- Hypertension is defined as having systolic blood pressure level greater than or equal to 140 mmHg or diastolic blood pressure level greater than or equal to 90 mmHg or/and taking anti-hypertensive medication to lower his/her blood pressure.
- India has committed to a "25 by 25" goal, which aims to reduce premature mortality due to non-communicable diseases (NCDs) by 25% by 2025. One of the nine



voluntary targets includes reducing the prevalence of high blood pressure by 25% by 2025.

- The programme was launched in November 2017. In the first year, IHCI covered 26 districts across five States Punjab, Kerala, Madhya Pradesh, Telangana, and Maharashtra.
- By December 2020, IHCI was expanded to 52 districts across ten States Andhra Pradesh (1), Chhattisgarh (2), Karnataka (2), Kerala (4), Madhya Pradesh (6), Maharashtra (13), Punjab (5), Tamil Nadu (1), Telangana (13) and West Bengal (5).

## **THE HINDU**

### **International Food Policy Research Institute (IFPRI)**

- India's food production could drop 16% and the number of those at risk for hunger could increase 23% by 2030 due to climate change, says a report by the International Food Policy Research Institute (IFPRI) on climate change and food systems.
- It was developed with inputs from scientists from the Consortium of International Agricultural Research Centers (CGIAR) and other leading global economic modelling efforts, the report notes.
- The number of Indians at risk from hunger in 2030 is expected to be 73.9 million in 2030 and, if the effects of climate change were to be factored in, it would increase to 90.6 million.
- The aggregate food production index will, under similar conditions, drop from 1.6 to 1.5.
- On a positive note, climate change will not impact the average calorie consumption of Indians and this is projected to remain roughly the same at 2,600 kcal per capita per day by 2030 even in a climate change scenario.
- Baseline projections indicate that global food production will grow by about 60% over 2010 levels by 2050 in the context of climate change.
- Production and demand are projected to grow more rapidly in developing countries due to projected growth in population and incomes.
- Diets are also shifting toward higher-value foods, including more fruits and vegetables, processed foods, and animal-source foods, outside high-income countries.
- Meat production is projected to double in South Asia and West and

Central Africa by 2030 and triple by 2050.

- Despite this, per capita consumption levels in developing countries will remain less than half of those in developed countries.
- However, regional differences in access to food mean that nearly 500 million people are projected to remain at risk of going hungry.
- Globally, about 70 million more people will be at risk from hunger because of climate change, including more than 28 million in East and Southern Africa, the report added.

**THE HINDU**

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GES  
REPORTER

## Iran Nuclear talk to begin

- Stalled negotiations over Iran's nuclear programme have been unblocked after fresh talks in Tehran,

### About JCPOA

- The Joint Comprehensive Plan of Action known commonly as the Iran nuclear deal or Iran deal, is an agreement on the Iranian nuclear program reached in Vienna on 14 July 2015, between Iran and the P5+1 (the five permanent members of the United Nations Security Council China, France, Russia, United Kingdom, United States plus Germany) together with the European Union.

### Iran Perspective

- Iran's problems with the U.S. are not based on technical issues pertaining to uranium enrichment; they were political and relate to its domestic order and regional role.
- Iran has now moved on, with deepening ties with Russia and China, and robust engagements political, economic, military and logistical with regional partners. Iran is rebuilding relations with Azerbaijan, is a partner with Turkey in Syria, and has had four rounds of dialogue with Saudi Arabia.

- Meanwhile, the U.S. itself has lost much of its credibility as a security provider in the region, aggravated by signals of disengagement from West Asian affairs from the Biden administration.
- This has encouraged regional players to pursue multiple diplomatic engagements amongst themselves the UAE, for instance, is in dialogue with Iran, while building close ties with Israel and Egypt, and economic cooperation with Turkey.
- Iraq is pursuing a cooperation network with Egypt and Jordan, while Turkey has reached out to the UAE, Saudi Arabia and Egypt, while retaining close ties with Qatar and Iran.

### THE HINDU

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## mRNA Vaccine

- The Centre for Cellular and Molecular Biology (CCMB) here has established the "proof of principle" of the first indigenous mRNA vaccine technology coming from a scientific institution in India.
- While vaccines work by training the immune system to identify disease-causing micro-organisms and eliminate them quickly when they encounter them, in the mRNA technology, the host cell's immune system is trained to evade the real infection.

- This is done by introducing mRNA of the micro-organism of concern into the host.
- The home-grown mRNA vaccine platform holds promise to deal with other infectious diseases such as TB, dengue, malaria, chikungunya, rare genetic diseases and others.

### **mRNA Vaccine working**

- The mRNA will enter the muscle cells and instruct the cells' machinery to produce a harmless piece of what is called the spike protein. The spike protein is found on the surface of the virus that causes COVID-19. After the protein piece is made, our cells break down the mRNA and remove it.
- Next, our cells display the spike protein piece on their surface. Our immune system recognizes that the protein doesn't belong there. This triggers our immune system to produce antibodies and activate other immune cells to fight off what it thinks is an infection. This is what your body might do to fight off the infection if you got sick with COVID-19.
- At the end of the process, our bodies have learned how to protect against future infection from the virus that causes COVID-19. The benefit of COVID-19 mRNA vaccines, like all vaccines, is that those vaccinated gain this protection without ever

having to risk the potentially serious consequences of getting sick with COVID-19.

### **THE HINDU**

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### **SCO RATS**

- Counterterrorism teams from Russia, China, Pakistan and Central Asian countries will gather in Delhi on the weekend ahead of the Shanghai Cooperation Organisation's Regional Anti-Terror Structure (SCO-RATS)

### **About SCO-RAT**

- SCO-RATS is a permanent body of the SCO and is intended to facilitate coordination and interaction between the SCO member states in the fight against terrorism, extremism and separatism.
- The main functions of SCO-RATS are coordination and information sharing.
- As a member, India has actively participated in the activities of SCO-RATS.
- India's permanent membership would enable it to generate greater understanding among members for its perspective.

### **THE HINDU**

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## Shanghai Cooperation Organisation (SCO)

- The Shanghai Cooperation Organisation (SCO), also known as the Shanghai Pact, is a transcontinental political, economic, security, and military alliance.
- In terms of geographic scope and population, it is the world's largest regional organization, covering approximately 60% of the area of Eurasia, 40% of the world population, and more than 30% of global GDP.
- The SCO is the successor to the Shanghai Five, a mutual security agreement formed in 1996 between China, Kazakhstan, Kyrgyzstan, Russia, and Tajikistan.
- On 15 June 2001, the leaders of these nations and Uzbekistan met in Shanghai to announce a new organisation with deeper political and economic cooperation; the SCO Charter was signed on 7 July 2002 and entered into force on 19 September 2003. Its membership has since expanded to eight states, with India and Pakistan joining on 9 June 2017.

**THE HINDU**

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## Jute industry crisis in west Bengal

- West Bengal is the hub of India's jute industry, valued at around Rs 10,000 crore.
- The issue is the procurement of raw jute at a higher cost but the final output is being sold at higher rates. The government procures raw jute from farmers at a fixed Minimum Support Price (MSP) which is Rs 4,750 per quintal for the financial year 2022-23.
- Reports show that this reaches the mill at Rs. 7,200 per quintal, that is, Rs. 700 more than the Rs. 6,500 per quintal cap for the final product.
- The jute mills do not procure raw material directly from the farmers because the mills are far from farmers and the process of procurement takes time. No single farmer produces enough to meet the entire demand of a mill. Thus, the middlemen or traders procure raw jute from multiple farmers and then trade it to the mills,
- In May 2020, Cyclone Amphan resulted in lower production of Jute. A report by the Commission for Agricultural Costs and Prices (CACP) said that a lower quality of jute fibre was produced in 2020-21 due to the cyclone.

- The problem of waterlogging arose and farmers had to harvest their crops prematurely. Furthermore, lower production was already a problem and hoarding added to it.

### **Jute production in India**

- India is the largest producer of Jute followed by Bangladesh and China. It is also known as the golden fibre and is one of the most significant industries after cotton in India.
- However, Bangladesh tops the list in terms of acreage and trade as it accounts for three-fourths of the global jute exports in comparison to India's 7%.
- The major jute producing states are West Bengal, Bihar, Odisha, Assam, Andhra Pradesh, Meghalaya and Tripura and over 99% of India's total production is held by West Bengal, Bihar and Assam.
- Jute is majorly grown in the delta shared by West Bengal and southwest Bangladesh, and in parts of Assam, Meghalaya and Tripura.
- It grows in a warm and humid climate with temperatures between 24° C to 37° C.
- It is totally biodegradable and recyclable. It not only consumes carbon dioxide and releases oxygen but also increases soil fertility if grown in crop rotations. It does not produce toxic gases while burnt.

### **THE HINDU**

## RNA granule

- Dive into the cytoplasm of any cell and one comes across structures made of messenger RNA (mRNA) and proteins known as RNA granules, in general.
- Unlike other structures in the cell (such as mitochondria), the RNA granules are not covered and confined by a membrane.
- This makes them highly dynamic in nature, thereby allowing them to constantly exchange components with the surrounding.
- RNA granules are present in the cytoplasm at low numbers under normal conditions but increase in number and size under stressful conditions including diseases.
- A defining feature which does not change from one organism to another (conserved) of the RNA granule protein components is the presence of stretches containing repeats of certain amino acids.
- Such stretches are referred to as low complexity regions. Repeats of arginine (R), glycine (G) and glycine (G) known as RGG are an example of low complexity sequence.

## Protein synthesis

- Messenger RNAs are converted to proteins (building blocks of the cell) by the process of translation.
- RNA granules determine messenger RNA (mRNA) fate by deciding when and how much protein would be produced from mRNA.
- Protein synthesis is a multi-step and energy expensive process.
- Therefore, a common strategy used by cells when it encounters unfavourable conditions is to shut down protein production and conserve energy to deal with the stressful situation.
- RNA granules help in the process of shutting down protein production.
- Some RNA granule types (such as Processing bodies or P-bodies) not only regulate protein production but also accomplish degradation and elimination of the mRNAs, which in turn helps in reducing protein production.

## Link found

- In recent years, a strong link has emerged between RNA granules and neurodegenerative disorders such as Amyotrophic Lateral Sclerosis (ALS) and Frontotemporal Dementia (FTD).
- The proteins implicated in these diseases such as Ewing sarcoma

breakpoint region 1 (EWSR1) and fused in sarcoma (FUS) are RNA binding proteins that can reside in RNA granules.

- In fact, these proteins are deposited as insoluble granules/aggregates in the neurons of ALS and FTD patients which are believed to contribute to the pathophysiology of these diseases.
- Finding ways of solubilising these aggregates could provide a breakthrough in treating these diseases.

## **THE HINDU**

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### **Pullulan polymer**

- The use of antibiotics to control bacterial infections has taken a beating with the emergence of multi-drug resistant pathogens, and researchers are looking to develop other ways of tackling such bacterial infections.
- In this context scientists have developed a new biomaterial that can be used to disinfect wounds and hastens the process of healing, as seen in mouse models.

### **Pullulan polymer**

- The biomaterial is derived from the polymer pullulan which is secreted by the fungus *Aureobasidium pullulans*.

- It is an exopolysaccharide, that is, this polymer is secreted by the fungus itself into the medium on which it is growing
- Pullulan as a biomaterial is already successful and widely used commercially.
- It is exploited in food, cosmetics and pharmaceutical industry because of its nontoxic, non-mutagenic and non-immunogenic properties.
- The material could cause a 100% closure of wounds within 12 days, while in the absence of application of the material, closure was only 60%.

## **THE HINDU**

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### **Butyrylcholinesterase (BChE)**

- A team of Australian researchers have identified a biochemical marker in the blood that could help identify newborn babies at risk for sudden infant death syndrome (SIDS), a breakthrough they said creates an avenue to future tragedy preventing interventions.
- In their study, babies who died of SIDS had lower levels of an enzyme called butyrylcholinesterase (BChE) shortly after birth, the researchers said.
- BChE plays a major role in the brain's arousal pathway, and low levels



would reduce a sleeping infant's ability to wake up or respond to its environment.

- The fact that levels of the enzyme were significantly lower in the infants who subsequently died of SIDS suggests the SIDS babies were inherently vulnerable to dysfunction of the autonomic nervous system, which controls unconscious and involuntary functions in the body.

## **THE HINDU**

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### **Lunar regolith**

- Scientists have grown plants in soil from the Moon, a first in human history.
- University of Florida researchers showed (Communications Biology) that plants can successfully sprout and grow in lunar soil.
- Their study also investigated how plants respond biologically to the Moon's soil, also known as lunar regolith, which is radically different from soil found on Earth.
- To grow their tiny lunar garden, the researchers used thimble-sized wells in plastic plates normally used to culture cells.
- Each 'pot' was filled with nearly a gram of lunar soil, the soil was moistened with a nutrient solution

and a few seeds from the Arabidopsis plant was added.

- The plants were grown in non-lunar soils as a control group.
- All the seeds planted in the lunar soils sprouted but plants were smaller, grew more slowly or were more varied in size than their counterparts.
- These were all physical signs that the plants were working to cope with the chemical and structural make-up of the Moon's soil.

## **THE HINDU**

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### **China's robotic rover, Zhurong**

- Water on Mars Hydrated minerals discovered by China's robotic rover, Zhurong, on Mars suggest water was present on the planet's surface for longer than previously thought, said Chinese scientists.
- According to an analysis of data, signs of water were detected in the sampled minerals from just 700 million years ago,

### **Zhurong**

- Zhurong is a Mars rover that is China's first rover to land on another planet (they had previously landed two rovers on the Moon).
- It is part of the Tianwen-1 mission to Mars conducted by the China

National Space Administration  
(CNSA).

- The spacecraft was launched on 23 July 2020 and inserted into Martian orbit on 10 February 2021.

**THE HINDU**

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GES  
REPORTER

## Abeyance of section 124A

- In a brief order delivered in S.G. Vombatkere vs Union of India, a three-judge Bench of the Supreme Court of India effectively suspended the operation of Section 124A of the Indian Penal Code
- This direction was issued after the Union government filed an affidavit informing the Court that it had decided to re-examine the law.
- “, Section 124A defines sedition as any action “whether by words, signs, or visible representation” which “brings or attempts to bring into hatred or contempt or excites or attempts to excite disaffection towards the Government established by law in India”.
- The word “disaffection”, the provision explains, “includes disloyalty and all feelings of enmity”. The section carries with it the prospect of life in prison.
- K.M. Munshi argued so forcefully in the Constituent Assembly to delete the use of the “equivocal” word “sedition” as a permitted restriction on free speech
- Munshi’s amendment sailed through. The adopted Constitution did not permit a restriction on free speech on the grounds of sedition.
- In 1962, in Kedar Nath Singh vs State of Bihar, a five-judge Bench of the Supreme Court found that Section 124A was defensible as a valid restriction on free speech on grounds of public order.
- However, while upholding the clause, the Court limited its application to “acts involving intention or tendency to create disorder, or disturbance of law and order, or incitement to violence”
- To protect our democracy, we must ensure that the constitutional guarantees to personal liberty and freedom do not go in vain. For that, each of our penal laws must be animated by a concern for equality, justice, and fairness.

## THE HINDU

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### Importance of Lumbini

- The visit is political, since it will, hopefully, put to rest the unnecessary debate on whether the Buddha was born in Nepal, which, for Nepal, is a sensitive issue
- It is strategic, in the face of the growing presence of China in Lumbini, which is close to the Indian border; the largest monastery has been built by the Chinese who sponsor and support international conferences on Buddhism in Nepal

as well as the massive celebrations on Buddhist festivals such as Vesak.

- In pre-COVID-19 times, there was a steady flow of Chinese tourists to Lumbini and reports about potential Chinese investments in the region.
- The Chinese are leaving no stone unturned to exploit the soft power potential of Buddhism, a fast-growing religious tradition that has half-a-billion adherents (largely in East and Southeast Asia).
- India is home to some of the most sacred sites of Buddhism: the place of Lord Buddha's enlightenment, Bodh Gaya; of his first sermon, Sarnath; and of his Mahaparinirvana, Kushinagar.
- And this is not counting Shravasti, where the Buddha preached for many years; Nalanda; and Rajgir, among several others.
- Unfortunately, India remains largely unrepresented in Lumbini, but for a small museum building that was constructed with Indian assistance in the late 1990s.
- Both Lumbini and the Mahabodhi Temple in Bodh Gaya are UNESCO World Heritage sites they are to Buddhists what Mecca is to Muslims or Kashi is to Hindus, and should be visited at least once in a lifetime. However, the footfalls of Buddhist pilgrims remain low.
- For years there has been talk about developing a Buddhist circuit with seamless connectivity and comfortable travel between the major pilgrimage sites in Nepal and India.
- There is an urgent need to adopt a master plan and develop Bodh Gaya as a sacred place for pilgrimage for both Hindus and Buddhists.
- India can also take the initiative to organize an international conference on the development of the Buddhist circuit; this will give a sense of participation and ownership to Buddhist countries.
- This could be a joint initiative of India and Nepal. India can also establish an international museum of Buddhist traditions in Bodh Gaya and invite all Buddhist countries to participate.

## **THE HINDU**

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### **Finland to join NATO**

#### **The story so far:**

- The strategic geopolitical ambiguity of Finland has finally come to a halt and taken a hard turn as Finland formally announced its intention of joining the North Atlantic Treaty Organization (NATO)
- The Finnish security concerns began to heighten post the Russian

Annexation of Crimea in 2014 and have snow-balled now into an immediate existential crisis of sorts after the recent Russian assault on Ukraine.

### **How has Russia responded to the announcement?**

- Official voices from within Russia give a sense of how they perceive the U.S's role as an agent provocateur trying to lure other countries towards NATO.
- The Russian state seems to be going through a sense of mania where officials talk about nuking countries, 'crushing bugs' (referring to the Baltic States), and invading countries in a bid to safeguard their security.
- The full-blown Russian invasion of Ukraine, which began almost three months back, has only resulted in isolating Russia from most countries in the world. They are losing a significant number of troops and scores of military equipment as the war continues
- Finland and Russia share a 1,300 km border and Kremlin's actions against Finland's (and potentially Sweden's) NATO membership may heavily depend on the potential military asset deployment along the border on the Finnish, and potentially Swedish, side.

- The Finns may very well not opt for immediate asset deployment and perhaps would want to use their NATO membership as a signal to Russia but if they continue to feel sufficiently threatened, they may opt for exhaustive asset deployment.

### **THE HINDU**

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### **Long Covid**

#### **The story so far:**

- Months after the first cases of COVID-19 were detected in the world outside China, concerns about persistent symptoms post infection cropped up.

#### **What is long COVID?**

- With the ongoing COVID-19 pandemic, evidence showed that a considerable proportion of people who have recovered from COVID-19 continue to face long-term effects on multiple organs and system.
- In the absence of a universally-accepted definition, post-COVID Syndrome, by consensus, is defined as signs and symptoms that develop during or after an infection consistent with COVID-19 which continue for more than 12 weeks

and are not explained by alternative diagnosis.

- Technically, post-COVID defines symptoms that persist four weeks after infection and Long COVID, 12 weeks past a COVID-19 infection.

#### **How long does long COVID last for?**

- The study, perhaps for the first time, described Long COVID for the longest time possible two years

#### **What is the status in India?**

- The government of India developed its own National Comprehensive Guidelines for the management of post-COVID sequelae.
- This document sets out detailed techniques to treat post-COVID complications affecting cardiovascular, gastrointestinal, nephrological, and neurological and respiratory systems.
- Several hospitals set up COVID wards to treat persons who complain of what seemed like post-COVID symptoms.

#### **THE HINDU**

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#### **Person in News**

- Election Commissioner Rajiv Kumar on Sunday assumed charge as the 25th Chief Election Commissioner (CEC).

#### **THE HINDU**

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## Technical education

- During the three decades immediately preceding the present (1961 to 1991), the number of technical higher education institutions had increased five times to go up from 53 to 277.
- During the same period, enrolment in technical higher education had increased six times 0.37 lakh to 2.16 lakh. Importantly, most of the growth has been in the government sector.
- During the past three decades (1991-2020) the institutions have gone up by 40 times (at 10,990), with the intake capacity rising 15 times to touch 32.85 lakh.
- The AICTE prescribes a minimum specific student-teacher ratio (STR), ranging from 7.5 to 20, depending on the type and level of programmes and disciplines under its domain.
- As an overwhelming majority of the institutions are unable to admit students to capacity, their STR, at least on paper, has gone down from 5.5 in 2012-13 to 3.0 in 2020-21.
- A lower STR could mean better quality but in their case, this only means higher cost adversely impinging on their economic sustainability.
- Their revenue models adversely impacted, they are unable to create quality infrastructure and human resources and become trapped in a vicious cycle of mediocrity.
- Appealing to the regulator Instead, they prefer regulators coming to their rescue. In the past they urged doing away with the requirements of a certain percentage of marks in the school board.
- Recently, they could convince the regulator to abolish the condition of studying science and mathematics at the senior secondary/intermediate level in schools, though the AICTE retracted from the decision quickly.

## THE HINDU

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### The Veblen Effect

- These apart, technical higher educational institutions are differentiated and highly hierarchical.
- The Indian Institutes of Technology, the National Institutes of Technology, the Indian Institutes of Information Technology, the Schools of Planning and Architecture, the National Institutes of Design, the National Institute of Pharmaceutical Education and Research and a few select universities are the most sought after.

- Taken together, they can admit a maximum of 40,000 students.
- An equal number of seats may be available in high quality private institutions. Being highly selective, they are the price makers.
- Left to market forces, they may resort to an exploitative pricing policy.
- They generally resist capacity expansion ostensibly out of fear of dilution in quality.
- Artificial scarcity suits them fine and at times enables them to use higher fees as a strategy for brand building.
- After all, the Veblen Effect (what is expensive is perceived to be excellent), is as applicable to higher education as it is to luxurie.
- , the AICTE Act mandates it “to take necessary steps to prevent commercialisation of (in) technical education”.
- Finally, would it be advisable for the AICTE to prescribe fees for all technical higher educational institutions spread across the length and breadth of the country?
- Cannot it just provide a broad framework and guidelines for determining the permissible level of fees?
- The rest could be left to the State level fee fixation committees.

### Public health engineers

- Globally, around 80% of wastewater flows back into the ecosystem without being treated or reused, according to the United Nations.
- This can pose a significant environmental and health threat.
- In the absence of cost-effective, sustainable, disruptive water management solutions, about 70% of sewage is discharged untreated into India’s water bodies.
- A staggering 21% of diseases are caused by contaminated water in India, according to the World Bank, and one in five children die before their fifth birthday because of poor sanitation and hygiene conditions, according to Start-up India.
- The availability of systemic information and programmes focusing on teaching, training, and capacity building for this specialty cadre is currently limited.
- Both as professions and as practice, engineering and public health have been traditionally understood as different fields.
- However, together, these fields can offer a wide range of opportunities for the development of advanced wastewater treatment systems, for understanding complex quality and monitoring processes, designing and managing septic tank systems,



supplying good quality water in adequate quantities, maintaining hygiene and access to water, and ensuring that water supply is sustainable, including the study of relevant industry standards and codes of practices.

- The goal of reaching every rural household with functional tap water can be achieved in a sustainable and resilient manner only if the cadre of public health engineers is expanded and strengthened.
- Following international trends In India, public health engineering is executed by the Public Works Department or by health officials. This differs from international trends.
- To manage a wastewater treatment plant in Europe, for example, a candidate must specialise in wastewater engineering.
- With the Government of India starting to think along these lines, introducing public health engineering as a two-year structured master's degree programme or through diploma programmes for professionals working in this field must be considered to meet the need of increased human resource in this field.
- Public health engineering's combination of engineering and

public health skills can also enable contextualised decision-making regarding water management in India.

- For example, wastewater management systems, especially decentralised and onsite systems, have to be designed based on hydro-geological data and observations of climate patterns.
- From promoting a robust understanding of processes, trends, and the latest technology in water and wastewater quality monitoring, treatment, and management, public health engineering can help decision/policy makers explore the available options.

## **THE HINDU**

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### **SDG**

- NITI Aayog's 2020-21 Sustainable Development Goals (SDGs) India Index detailed the implementation of the United Nations' SDGs in the country, States and Union Territories (UTs). It gave marks, between 0 and 100 points, to each region.
- In a significant marker of improvement, no State fared in the 'Aspirant' category, the lowest in the index.
- All the States managed to score above 50 points in SDG

implementation, with 13 States featuring in the 'Performer' category and 15 in the 'Front Runner' category (the second highest position).

- There was improvement in the overall performance of the country towards SDG implementation.
- India stepped into the 'Front Runner' category with a score of 66 points, though it dropped two ranks in the ordinal scale. However, our neighbouring countries performed better than us.
- India did well in implementing SDGs 6,7, 11 and 12, which are 'clean water and sanitation', 'affordable and clean energy', 'sustainable cities and communities', and 'sustainable consumption and production', respectively, but did not do well in many others.

### **Odisha's good show**

- While the national ranking dropped, Odisha saw a three-point improvement in its overall score and settled at 61 points. It topped in the implementation of two SDGs 13 and 14, which are 'climate action' and 'life below water', respectively
- Odisha managed to save 120.07 tonnes of CO<sub>2</sub> per 1,000 population, by using LED bulbs, against India's 28.04 tonnes. In the 'life below'

water SDG, which aims to conserve oceans, seas and marine resources by preventing marine pollution and illegal fishing practices, Odisha scored 82.

### **Hard work ahead**

- The NITI Aayog report presents myriad concerns to policymakers. Even with a significant improvement in many goals, India continues to be in the 'Aspirant' category for the implementation of 'gender equality' and 'zero hunger'.
- Many others, such as 'no poverty', 'quality education', 'decent work and economic growth', 'industry, innovation and infrastructure', and 'climate action', need a lot more work so that the country can be pulled up to the 'Front Runner' category from the 'Performer' category.
- Partnership is the key to achieve this.
- The current level of collaboration with States, UTs, civil society organisations and businesses should be further enhanced by overlooking any differences in political ideologies.
- There is a need to aggressively implement SDG localisation efforts at the district, panchayat and village levels so that implementation feedback from the field is available,

besides enabling true internalisation of the SDGs by the community.

## THE HINDU

### Repo rate

#### The story so far:

- On May 4, the Reserve Bank of India, in a surprise move, announced that the bank's Monetary Policy Committee (MPC) had held an 'off-cycle' meeting at which it had decided unanimously to raise the "policy repo rate by 40 basis points to 4.40%, with immediate effect".
- Citing 'inflation that was rising alarmingly and spreading fast' globally, amid geopolitical tensions, RBI Governor Shakti kanta Das said that the MPC had judged that the 'inflation outlook warranted an appropriate and timely response through resolute and calibrated steps to ensure that the second-round effects of supply side shocks on the economy were contained and long-term inflation expectations were kept firmly anchored.

#### What is the repo rate?

- The repo rate is one of several direct and indirect instruments that are used by the RBI for implementing monetary policy.

- Specifically, the RBI defines the repo rate as the fixed interest rate at which it provides overnight liquidity to banks against the collateral of government and other approved securities under the liquidity adjustment facility (LAF).

#### How does the repo rate work?

- Besides the direct loan pricing relationship, the repo rate also functions as a monetary tool by helping to regulate the availability of liquidity or funds in the banking system.
- For instance, when the repo rate is decreased, banks may find an incentive to sell securities back to the government in return for cash.
- This increases the money supply available to the general economy.
- Conversely, when the repo rate is increased, lenders would end up thinking twice before borrowing from the central bank at the repo window thus, reducing the availability of money supply in the economy.

#### What impact can a repo rate change have on inflation?

- Inflation can broadly be: mainly demand driven price gains, or a result of supply side factors that in turn push up the costs of inputs used

by producers of goods and providers of services, thus spurring inflation, or most often caused by a combination of both demand and supply side pressures.

- Changes to the repo rate to influence interest rates and the availability of money supply primarily work only on the demand side by making credit more expensive and savings more attractive and therefore dissuading consumption.

#### **What other factors influence the repo rate's efficacy**

- In February 2021, the RBI in its annual 'Report on Currency and Finance' observed that "the challenge for an efficient operating procedure [of monetary policy] is to minimise the transmission lag from changes in the policy rate to the operating target", which in this case is the mandate to keep medium-term inflation anchored at 4%, and bound within a tolerance range of 2% to 6%.
- The RBI noted in the report that there were several channels of transmission, 'the interest rate channel; the credit or bank lending channel; the exchange rate channel operating through relative prices of tradables and non-tradables; the asset price channel impacting

wealth/income accruing from holdings of financial assets; and the expectations channel encapsulating the perceptions of households and businesses on the state of the economy and its outlook.

### **THE HINDU**

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#### **CDS**

#### **What is the role of the Chief of Defence Staff?**

- The Government's decision in 2019 to create the post of a CDS, a long-pending demand to bring in tri-service synergy and integration, is the biggest top-level military reform since independence.
- In December 2019, the Union Cabinet chaired by Prime Minister Narendra Modi had given approval to create the post of CDS in the rank of a four-star General with salary and perquisites equivalent to a Service Chief and then Army Chief Gen.
- Rawat was appointed to the post.
- The CDS would also be the Principal Military Adviser to the Defence Minister and Permanent Chairman Chiefs of Staff Committee (CoSC).
- In addition, the DMA was created as the fifth department in the Ministry of Defence (MoD) with the CDS functioning as its Secretary.

- The broad mandate of the CDS includes bringing about jointness in “operations, logistics, transport, training, support services, communications, repairs and maintenance of the three Services, within three years of the first CDS assuming office.
  - He will act as the Principal Military Adviser to Defence Minister on all tri-Services matters.
  - However, the three Chiefs will continue to advise the Defence Minister on matters exclusively concerning their respective Services,” a Government statement had said while adding that the CDS will not exercise any military command, including over the three Service Chiefs.
  - The CDS is also meant to bring about synergy and optimise procurements, training and logistics and facilitate restructuring of military commands for optimal utilisation of resources by bringing about jointness in operations, including through establishment of joint/ theatre commands.
  - The CDS will also evaluate plans “for ‘Out of Area Contingencies’, as well other contingencies such as Humanitarian Assistance and Disaster Relief (HADR),” officials had stated.
  - The specialised tri-service divisions special operations, defence cyber and defence space were also brought under the ambit of the CDS.
- Why the rethink?**
- Official sources said that with the experience of the last few years of having a CDS, there is a rethink that the appointment of a CDS in itself wasn’t enough and there are several issues with respect to roles and responsibilities, issues of equivalence among others.
  - “This made the Government pause, look back and reassess the entire reform process,” one official said on condition of anonymity.
  - There is also dichotomy in the roles and responsibilities with the several hats worn by the CDS and also overlap in responsibilities between the DMA and DoD, officials stated while also adding that there is also a rethink on the ambitious timelines set for the creation of theatre commands and also the number of commands and their envisaged format.
  - While several options are being looked at, one of the ways to go forward would be to have a CDS with operational powers who will after due legislative changes have theatre commanders report to him while the

Service Chiefs will look after the raise, train and sustain functions of respective Services.

**THE HINDU**

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GES  
REPORTER

## Deglobalisation

- It started with a backlash against globalisation that took two forms: economic and cultural.
- The economic backlash was straightforward. The poor and the unemployed in the developed world began to feel that they had no stake in the globalised system, and demanded to know why their governments' policies benefited people in faraway lands such as China and India with what used to be their jobs.
- They wanted to reduce the growing inequality in every "developed" economy and go back to the security of older, more familiar economic ways, in which each generation assumed they would earn more and live better than their parents did.
- The cultural backlash derived from the same resentment but expressed itself in a different arena: the political denunciation of global trade led to hostility towards foreigners, as more and more people sought the comforts of traditional identity and ways of life.
- Animated often by bitter working class and lower-middle class resentment of global elites, the "masses" rejected the entire brew of liberal politics, cosmopolitans and technocrats, trade agreements, immigration, multiculturalism and secularism in the name of cultural rootedness, religious or ethnic identity and nationalist authenticity.
- The COVID-19 pandemic confirmed, for many, that in times of crisis, people rely on their governments to shield them; that global supply chains are vulnerable to disruption; and that dependence on foreign countries for essential goods (such as pharmaceuticals, or even the ingredients that go into making them) could be fatal.
- Nations tried aggressively to acquire medicines, supplies and vaccines for their own people at the expense of each other.
- There was a rush to reset global supply chains and raise trade barriers: the demand arose for more protectionism and "self-reliance"
- The Russian invasion of Ukraine forced all of our countries to grapple with the limitations on state sovereignty, the credibility of the UN Charter, new disruptions of supply chains and trade, energy interdependence and the future of warfare.
- The world economy had thrived since globalisation began in 1980 on an open system of free trade.

- That had already been shaken by the financial crash of 2008-09 and the American trade war with China.
- The novel coronavirus pandemic has exacerbated these challenges, with estimates suggesting that nearly a third of global trade fell in 2020, though a gradual recovery trajectory is now starting to emerge.
- Now, the sanctions on Russia have severely restricted trade, investment and financial flows into and out of that country.
- There is no doubt that the COVID-19 pandemic was a “mega shock” to the global system.
- As sovereignties are reasserted across the world, and treaties and trade agreements increasingly questioned, multilateralism, the once taken-for-granted mantra of international co-operation, could be the next casualty
- WHO’s response to the outbreak, with its indulgence of the official Chinese line, points to the waning legitimacy of international institutions.
- Many of our global institutions and their agencies suffer from politicisation, manipulation and a lack of representation, and independent leadership.
- Regional implications
- The phenomenon of “Deglobalisation” has its regional implications too. Europe, once seen as a “poster child” for the virtues of regional integration, became the epitome of its limitations, since the “idea of Europe” crumbled quickly under the onslaught of the pandemic.
- The famous Schengen visa and the notion of border-free movement was the first casualty of COVID-19.
- The EU countries threw up the barriers at the first sign of the virus: it did not take them long to rediscover the disadvantages and limits of the very free movement of goods, services, capital and people that they had sworn by for five decades.

## **THE HINDU**

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### **PM visit to Lumbini**

- Lumbini is the birthplace of Gautama Buddha and Mr. Modi along with his Nepali counterpart laid the foundation stone for the India International Centre for Buddhist Culture and Heritage in the Lumbini Monastic Zone.
- The Centre will play a role in challenging the preponderance of the Chinese sponsorship and



patronage of the Buddhist festivals and institutions in the area.

- It could also be a harbinger of a focused development of the area into a tourist and cultural hub for pilgrims and other visitor.
- With the PM also unequivocally asserting that Lumbini was the birthplace of Gautama Buddha, who was born as Siddhartha, this should put to rest a needless irritant in the India-Nepal relations, with some hyper-nationalist Nepalis claiming that the Indian government had a different belief on the Buddha's origins.
- The visit also coincided with the signing of a few MoUs, the most prominent being the development and implementation of the Arun-4 hydropower project.
- The PM's visit followed his counterpart Sher Bahadur Deuba's trip to India in April, which thawed relations after a series of controversial steps (during the tenure of Mr. Deuba's predecessor, K.P. Oli) on the Kalapani dispute.
- Mr. Modi's speech in Lumbini sought to highlight the strong cultural ties between the two countries, which already share a special relationship, cemented by the Treaty of Peace and Friendship signed in 1950.
- There are several irritants that have developed, straining this relationship, and for now there seems to be a concerted attempt by both regimes to return to bonhomie, with the Indian government seeking to utilise "religious diplomacy" as a means to emphasise the special relationship.
- But there have been significant changes in Nepal's political-economy, in particular a substantial reduction in the Nepali youths' dependence on the Indian economy as compared to the past.
- Beyond a soft power emphasis on cultural ties, India-Nepal relations need to graduate to a more meaningful partnership on economic and geopolitical issues, with the Indian government continuing to retain a substantial role in partnering the Nepali regime in development projects.
- The challenge is to utilise the return of bonhomie in ties to refocus on work related to infrastructure development in Nepal, which includes hydropower projects, transportation and connectivity, and which could benefit the citizens of the adjoining States in India as well.

**THE HINDU**

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## Cold system and vaccination

- India's Universal Immunisation Programme (UIP), launched in 1985 to deliver routine immunisation, showcased its strengths in managing large-scale vaccine delivery.
- This programme targets close to 2.67 crore newborns and 2.9 crore pregnant women annually.
- To strengthen the programme's outcomes, in 2014, Mission Indradhanush was introduced to achieve full immunisation coverage of all children and pregnant women at a rapid pace a commendable initiative.
- But the pandemic reminded us that vaccines alone do not save lives, vaccination does.
- While we have, over the years, set up a strong service delivery network, the pandemic showed us that there were weak links in the chain, especially in the cold chain, which needs to be robust and seamless.
- Cold chain management: The success of any sustainable vaccination programme relies on many factors.
- A key factor is cold chain management because when this fails, the potency or effectiveness of the vaccine is wasted.
- Nearly half the vaccines distributed around the world go to waste, in large part due to a failure to properly control storage temperatures.
- In India, close to 20% of temperature-sensitive healthcare products arrive damaged or degraded because of broken or insufficient cold chains, including a quarter of vaccines.
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- In India, close to 20% of temperature-sensitive healthcare products arrive damaged or degraded because of broken or insufficient cold chains, including a quarter of vaccines.
- The role played by supportive infrastructure for cold chain such as a regular supply of electricity cannot be underplayed.
- In this regard, there is a need to improve electrification, especially in the last mile, for which the potential

of solar-driven technology must be explored to integrate sustainable development

- Robust cold chain systems are an investment in India's future pandemic preparedness; by taking steps towards actionable policies that improve the cold chain, we have an opportunity to lead the way in building back better and stronger.

## **THE HINDU**

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### **Places of worship act**

#### **What does the Places of Worship Act say?**

- In March 2021, the Supreme Court asked the Centre to respond to a petition that challenges the Places of Worship (Special Provisions) Act, 1991.
- The law was enacted to freeze the status of all places of worship in the country as on August 15, 1947.
- An exception was made to keep the Babri Masjid-Ramjanmabhoomi dispute out of its ambit as the structure was then the subject of litigation.
- The dispute ended after the court ruled that the land on which the Masjid stood should be handed over to the Hindu community for the construction of a Ram temple.

- The challenge to the Act questions the legality of the prohibition it imposes on any community laying claim to the places of worship of another.
- The Act says that no person shall convert any place of worship of any religious denomination into one of a different denomination or section. It contains a declaration that a place of worship shall continue to be as it was on August 15, 1947.
- Significantly, it prohibits any legal proceedings from being instituted regarding the character of a place of worship, and declares that all suits and appeals pending before any court or authority on the cut-off date regarding the conversion of the character of a place of worship shall abate.
- In other words, all pending cases will come to an end, and no further proceedings can be filed.
- However, any suit or proceedings relating to any conversion of status that happened after the cut-off date can continue.

#### **In which cases will the law not apply?**

- The 1991 Act will not apply in some cases. It will not apply to ancient and historical monuments and archaeological sites and remains

that are covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958.

- It will also not apply to any suit that has been finally settled or disposed of, any dispute that has been settled by the parties before the 1991 Act came into force, or to the conversion of any place that took place by acquiescence.
- The Act specifically exempted from its purview the place of worship commonly referred to at the time as Ram Janmabhoomi-Babri Masjid in Ayodhya.
- It was done to allow the pending litigation to continue as well as to preserve the scope for a negotiated settlement.
- Anyone contravening the prohibition on converting the status of a place of worship is liable to be imprisoned for up to three years, and a fine.
- Those abetting or participating in a criminal conspiracy to commit this offence will also get the same punishment.

### **Why ban of wheat export?**

- As Russia and Ukraine, the largest exporters of wheat were at war, India has been looking forward to fill this gap by boosting its own exports.
- However, food security campaigners insisted on a cautious approach.

- They argued that ensuring the stability of prices and the availability of grain for internal consumption should be the top two priorities than increasing exports.
- Their reasons were two-fold.
- They argued that ensuring the stability of prices in India and the availability of grain for internal consumption should be the top two priorities for the Indian government than increasing exports.
- The increase in exports should not be done at the cost of domestic consumption, especially with the recent expansion of the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) program, they cautioned.
- The decrease in production estimates and a considerable fall in wheat procurement raised concerns that domestic consumption may get impacted. Moreover, the local prices started to rise.
- The extreme temperatures recorded in March and April, across north India, were the reason behind the sudden turnaround of the government.
- For instance, across Punjab, between April 8 and 14, the maximum temperature was over 6°C higher than the usual, compared to the long period average.

- The actual maximum temperatures have been consistently hovering over the 40°C mark across the State in April.
- The extreme heat led to a marked decrease in wheat yields across north India.
- For instance, in Punjab, crop cutting experiments showed that the wheat productivity was below 18 quintals per acre this year, down from the average yield of 19.7 quintals per acre last year.
- industrial pollution (such as ambient air pollution and chemical pollution).
- A report by The Lancet in 2019 said that noxious air killed 1.67 million Indians in 2019, or 18% of all fatalities.
- The authors of the study conclude with eight recommendations that build on those given in the Lancet Commission on Pollution and Health.
- These include call for an Intergovernmental Panel on Climate Change (IPCC)-style science/policy panel on pollution, alongside increased funding for pollution control from governments and donors, and improved pollution monitoring and data collection.

## **THE HINDU**

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### **Lancet report**

- Pollution caused nearly nine million deaths in 2019, or about one in six deaths worldwide.
- This number has remained effectively unchanged since the previous such analysis in 2015 by the Lancet Commission on Pollution and Health, says a report published in The Lancet Planetary Health on Wednesday.
- Though the number of deaths from pollution sources associated with extreme poverty (such as indoor air pollution and water pollution) fell, these reductions are offset by increased deaths attributable to

## **THE HINDU**

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## Use of article 142

- The Supreme Court invoked its extraordinary powers to do complete justice under Article 142 of the Constitution and ordered the release of A.G. Perarivalan in former Prime Minister Rajiv Gandhi assassination case.
- A Bench led by Justice L. Nageswara Rao, in its judgment, took into consideration Perarivalan's long incarceration for over 30 years to order his release. Perarivalan is currently on bail.
- The apex court had commuted his death penalty to life sentence for murder in 2014.
- The court held that the Tamil Nadu Council of Ministers' advice on September 9, 2018 to pardon Perarivalan was binding on the Governor under Article 161 (Governor's power of clemency) of the Constitution.
- The Governor had no business forwarding the pardon plea to the President after sitting on it for years together.
- It said the Governor's delay to decide Perarivalan's pardon for more than two years has compelled the court to employ its constitutional powers under Article 142 to do justice to Perarivalan.
- After all, the court said, a Governor's non-exercise of power under Article 161 of the Constitution was not immune from judicial review.
- "Taking into account Perarivalan's prolonged period of incarceration, his satisfactory conduct in jail as well as during parole, chronic ailments from his medical records, his educational qualifications acquired during incarceration and the pendency of his petition under Article 161 for two-and-a-half years after the recommendation of the State Cabinet, we do not consider it fit to remand the matter for the Governor's consideration.
- The Court dismissed the Centre's argument that the President exclusively, and not the Governor, had the power to grant pardon in a case under Section 302 (murder) of the Indian Penal Code.
- The court had said that such a contention would render Article 161 a "deadletter" and create an extraordinary situation whereby pardons granted by Governors in murder cases for the past 70 years would be rendered invalid.
- Nothing has been said on what should be done when the absence of any time-frame for the President or the Governor is cynically exploited to indefinitely delay executive decisions. It is impractical for every matter to be escalated to the point that the Supreme Court needs to

invoke its extraordinary powers under Article 142.

## **THE HINDU**

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### **NRC**

- The National Register of Citizens (NRC) is a register containing names of all genuine Indian citizens. At present, only Assam has such a register.
- The exercise may be extended to other states as well. Nagaland is already creating a similar database known as the Register of Indigenous Inhabitants. The Centre is planning to create a National Population Register (NPR), which will contain demographic and biometric details of citizens.

#### **What is NRC in Assam?**

- The NRC in Assam is basically a list of Indian citizens living in the state. The citizens' register sets out to identify foreign nationals in the state that borders Bangladesh.
- The process to update the register began following a Supreme Court order in 2013, with the state's nearly 33 million people having to prove that they were Indian nationals prior to March 24, 1971.
- The updated final NRC was released on August 31, with over 1.9 million applicants failing to make it to the list.

#### **How does one prove citizenship?**

- In Assam, one of the basic criteria was that the names of applicant's family members should either be in the first NRC prepared in 1951 or in the electoral rolls up to March 24, 1971.
- Other than that, applicants also had the option to present documents such as refugee registration certificate, birth certificate, LIC policy, land and tenancy records, citizenship certificate, passport, government issued licence or certificate, bank/post office accounts, permanent residential certificate, government employment certificate, educational certificate and court records.

#### **What happens with the excluded individuals?**

- "Non-inclusion of a person's name in the NRC does not by itself amount to him/her being declared a foreigner," govt has said. Such individuals will have the option to present their case before foreigners' tribunals.
- If one loses the case in the tribunal, the person can move the high court and, then, the Supreme Court.
- In the case of Assam, the state government has clarified it will not detain any individual until he/she is declared a foreigner by the foreigners' tribunal.

- The complete NRC draft was published on August 31, 2019.
- This draft excluded 19.06-lakh out of the 3.3 crore people who had applied for inclusion. In 2021, Mr. Sarma submitted an affidavit at the Guwahati High Court, referring to the August 2019 NRC as a “supplementary list” and not the “final NRC” and sought a re-verification.
- An FT member, choosing to be anonymous, insisted that the NRC published in accordance with relevant clauses of the Citizenship Rules of 2003, was final.

## **THE HINDU**

### **Drought in number report**

#### **The story so far:**

- A United Nations report has revealed that many parts of India fall under the list of regions that are vulnerable to drought globally.
- The report also stated that India’s Gross Domestic Product (GDP) reduced by 2 to 5% between 1998 and 2017 due to severe droughts in the country.
- Globally, droughts in the same period caused economic losses of approximately \$124 billion.
- These and other global findings centred on drought were collated in the Drought in Numbers, 2022

report presented by the United Nations Convention to Combat Desertification (UNCCD).

#### **What is the Drought in Numbers report?**

- The Drought in Numbers report is a collection of data on the effects of droughts on our ecosystem and how they can be mitigated through efficient planning for the future.
- The report also helps inform negotiations surrounding key decisions by the UNCCD’s 197 member parties at the 15th Conference of Parties (COP15), currently underway in Abidjan, Côte d’Ivoire.

#### **What is COP15?**

- UNCCD’s COP15 focuses on desertification, land degradation, and drought, with the theme for the conference being “Land. Life. Legacy: From scarcity to prosperity.”
- The conference has brought together government representatives, private sector members, and civil society stakeholders to ensure that land continues to benefit present and future generations.

#### **What does the report entail?**

- According to World Bank estimates, drought conditions can force up to



216 million people to migrate by 2050.

- Other factors at play along with drought could be water scarcity, declining crop productivity, rise in sea levels, and overpopulation.
- Weather, climate and water hazards have accounted for 50% of all disasters and 45% of all reported deaths since 1970, the World Meteorological Organisation data has revealed. Nine in ten of these deaths have occurred in developing countries.
- Between 2020 and 2022, 23 countries have faced drought emergencies.
- These are Afghanistan, Angola, Brazil, Burkina Faso, Chile, Ethiopia, Iraq, Iran, Kazakhstan, Kenya, Lesotho, Mali, Mauritania, Madagascar, Malawi, Mozambique, Niger, Somalia, South Sudan, Syria, Pakistan, the U.S., and Zambia.
- According to the report, climate change alone will cause 129 countries to experience an increase in drought exposure in the next few decades.
- More than a billion people around the world were affected by drought in 2000-19, making it the second-worst disaster after flooding. Africa was the worst hit, with 134 droughts, of which 70 occurred in East Africa.
- The World Health Organization has noted that globally, approximately

55 million people are directly affected by droughts annually, making it the most serious hazard to livestock and crops in almost every part of the world.

- The impact of drought is, however, not uniform across genders. Research shows that women and girls in emerging and developing countries suffer more in terms of education levels, nutrition, health, sanitation, and safety as a result of droughts.
- The burden of water collection also disproportionately falls on women (72%) and girls (9%).
- The report notes that they may spend up to 40% of their caloric intake fetching water.
- In 2022, over 2.3 billion people are facing water stress.
- Almost 160 million children are exposed to severe and prolonged droughts.

### **What are the environmental aspects?**

- According to the report, if predictions are correct and global warming reaches 3°C by 2100, drought losses could be five times higher than today's levels.
- The largest increase in drought losses is projected in the Mediterranean and the Atlantic regions of Europe.

- Australia's mega drought in 2019-2020 contributed to "mega fires" resulting in one of the most extensive losses of habitat for threatened species.
- About three billion animals were killed or displaced in the Australian wildfires.
- On a related note, 84% of all terrestrial ecosystems are threatened by changing and intensifying wildfires.
- According to a 2017 report by the Food and Agriculture Organisation, the percentage of plants affected by drought has more than doubled in the last 40 years. Around 12 million hectares of land are lost each year due to drought and desertification.
- The former IB officer said that the first software for MAC was designed in-house.
- An official said the MAC had the main server in Delhi which is linked to the subsidiary multi-agency centre (SMAC) under the Subsidiary Intelligence Bureau (SIBs) in all States, which further disseminates information to the intelligence branch or wing of the respective State police forces.
- Plans are now afoot to link it to the district office of the Superintendent of Police which has been pending for more than a decade now.
- "Intelligence agencies do not have investigating powers, it can only be done by the local police.

## **THE HINDU**

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### **MAC**

- The Union Home Ministry has sanctioned ₹138.48 crore to the Intelligence Bureau (IB) for a "technical upgrade", a senior government official said.
- The funds are meant to upgrade the multiagency centre (MAC), a common counter-terrorism grid under the IB concept the idea behind the MAC was to create an institutional memory on terrorism and act as a platform to analyse the information on terror-related activities.
- If MAC is linked to the district SP's office, relevant information on terror can be fed in the system leading to the expansion of terror database, ptualised in 2001 after the Kargil war.
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- Plans are now afoot to link it to the district office of the Superintendent of Police which has been pending for more than a decade now.
- “Intelligence agencies do not have investigating powers, it can only be done by the local police.
- If MAC is linked to the district SP’s office, relevant information on terror can be fed in the system leading to the expansion of terror database,
- MAC collated information from multiple agencies and put it in a common pool for the users to access the relevant information.
- “Not everyone can access the information.
- If an agency has found a suspicious number, it can run a search on the MAC platform and if the number is already stored in the database, the agency will be directed to the official concerned.
- As many as 28 organisations including the Research and Analysis Wing (R&AW), armed forces and State police are part of the platform and various security agencies share real time intelligence inputs on MAC.

- There are around 400 secured sites connected with the MAC headquarters.

## **THE HINDU**

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### **Pollution and NHRC**

- The National Human Rights Commission (NHRC) on Wednesday said it had issued an advisory to the Centre and State governments on preventing, minimising and mitigating the impact of environmental pollution and degradation on human rights.
- The NHRC said that despite “having one of the world’s best statutory and policy framework for environment protection”, India was facing a serious problem of pollution and ecological degradation preventing the enjoyment of basic human rights.
- The advisory focuses on the punishment of polluters; prevention and mitigation of vehicular pollution; and transparent processing of approvals and clearances under environmental laws.
- “The Union and State governments should make efforts to ensure effective and expeditious punishment of polluters and violators of environmental laws.
- These efforts should include strengthening of Pollution Control

Boards (PCBs) and other regulatory authorities,”

- The commission said PCBs should create separate investigation and prosecution wings, as well as carry out regular training sessions for staff
- It also recommended that “High Courts should establish Special Environmental Courts and ensure speedy trial of the cases involving violation of environmental laws”

**THE HINDU**

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GES  
REPORTER

## SC on GST law

- The Supreme Court, in a judgment championing the importance of “cooperative federalism” for the well-being of democracy, held that Union and State legislatures have “equal, simultaneous and unique powers” to make laws on Goods and Services Tax (GST) and the recommendations of the GST Council are not binding on them.
- The apex court’s decision came while confirming a Gujarat High Court ruling that the Centre cannot levy Integrated Goods and Services Tax (IGST) on ocean freight from Indian importers.
- “The recommendations of the GST Council are the product of a collaborative dialogue involving the Union and the States. They are recommendatory in nature... The recommendations only have a persuasive value. To regard them as binding would disrupt fiscal federalism when both the Union and the States are conferred equal power to legislate on GST,”
- The court emphasised that Article 246A (which gives the States power to make laws with respect to GST) of the Constitution treat the Union and the States as “equal units”.
- “It confers a simultaneous power (on Union and States) for enacting laws on GST... Article 279A, in constituting the GST Council, envisions that neither the Centre nor the States are actually dependent on the other.
- He said the Centre and States were “autonomous, independent and even competing units” while making GST laws.
- “The federal system is a means to accommodate the needs of a pluralistic society in a democratic manner... Democracy and federalism are inter-dependent. Federalism would only be stable in a well-functioning democracy. The constituent units of a federal polity checks the exercise of powers of one another to prevent one group from exercising dominant power,”

### As per the government

- The Supreme Court verdict does not entail any changes ‘in any way’ to the functioning of the GST regime and the institutional mechanism for its operation
- Terming the GST Council ‘the finest example of collaborative and cooperative federalism’, the Finance Ministry said that the apex court had ‘only elaborated’ on its functional mechanism in its observations.

- The Council was a collaborative institutional mechanism, and the Centre and States follow its recommendations that are arrived at with consensus

### As per States

- “Ever since the GST regime came into being, the Centre had been arbitrarily imposing its decisions on the States, affecting their revenue and forcing them to impose treasury restrictions,”
- “The Council was a only a recommendatory body and cannot supersede the State’s rights and power for enacting the laws with regard to GST,”
- Tax experts were tentative about the implications of the verdict.
- “This would have far-reaching implications on various other matters where the States are not in agreement with the decisions of the GST Council.

### THE HINDU

#### Amendment in ethanol policy

#### The story so far:

- The Union Cabinet on Wednesday approved amendments to the National Policy on Biofuels, 2018, to advance the date by which fuel

companies have to increase the percentage of ethanol in petrol to 20%, from 2030 to 2025. The policy of introducing 20% ethanol is expected to take effect from April 1, 2023.

#### What does switching to E20 entail?

- A NITI Aayog Committee report of June 2021 lays out a comprehensive picture of ethanol blending, the challenges and a roadmap.
- India’s net import of petroleum was 185 million tons at a cost of \$55 billion in 2020-21.
- Most of the petroleum is used by vehicles and therefore a successful 20% ethanol blending programme could save the country \$4 billion per annum, or about ₹30,000 crore.
- To achieve such savings, the committee estimates an ethanol demand of 1,016 crore litres based on expected growth in vehicle population.
- Because electric vehicles are also likely to increase, this should partially offset demand for ethanol leading to a requirement of 722-921 crore litres in 2025.

#### How does this affect engines?

- When using E20, there is an estimated loss of 6-7% fuel efficiency for four wheelers which are

originally designed for E0 and calibrated for E10, 3-4% for two wheelers designed for E0 and calibrated for E10 and 1-2% for four wheelers designed for E10 and calibrated for E20.

- Car makers have said that with modifications in engines (hardware and tuning), the loss in efficiency due to blended fuel can be reduced.

### **What is the international experience?**

- Flex Fuel Engine technology (FFE), or vehicles that run entirely on ethanol, are popular in Brazil and comprise nearly 80% of the total number of new vehicles sold in 2019. The cost of flex fuel vehicles (four-wheelers) could cost about ₹17,000 to ₹25,000 more than the current generation of vehicles.
- The two-wheeled flex fuel vehicles would be costlier by ₹5,000 to ₹12,000 compared to regular petrol vehicles.
- The global production of fuel ethanol touched 110 billion litres in 2019, or about an average growth of 4% year per year during the last decade.

### **What are the environmental costs of ethanol blending?**

- Because ethanol burns more completely than petrol, it avoids emissions such as carbon monoxide.
- However, tests conducted in India have shown that there is no reduction in nitrous oxides, one of the major environmental pollutants.
- A report by the Institute for Energy Economics and Financial Analysis (IEEFA) says that for India to meet its target of 20% ethanol blended in petrol by the year 2025, it will need to bring in 30,000 additional sq km of land to come under maize cultivation.
- Half that land can be used more efficiently to produce clean electricity from solar energy, they contend.
- For India, sugarcane is the cheapest source of ethanol. On average, a ton of sugarcane can produce 100 kg of sugar and 70 litres of ethanol but that would mean 1,600 to 2,000 litres of water to produce 1 kg of sugar, implying that a litre of ethanol from sugar requires about 2,860 litres of water.

### **THE HINDU**

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## South Asia biodiversity

- According to the Global Assessment Report on Biodiversity and Ecosystem Services released in 2019 by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) at the UNESCO headquarters in Paris, the main global drivers of biodiversity loss are climate change, invasive species, and over-exploitation of natural resources, pollution and urbanisation.
- The earth is under strain Because of our collective excesses, the ecological carrying capacity of planet earth has largely been exceeded.
- This trend needs to be redressed, with cleaner air, high quality drinking water, and enough food and healthy habitats to ensure that ecosystem services continue to benefit humanity without critically affecting nature's balance.

### Biosphere reserves are key

- One of the best mechanisms that has been created is the World Network of Biosphere Reserves, created in 1971 by UNESCO.
- Biosphere reserves are places where humans live in harmony with nature, and where there is an effective combination of sustainable

development and nature conservation.

- They represent pockets of hope and proof that we are not inexorably headed towards a doomsday ecological scenario, provided we take appropriate action. In South Asia, over 30 biosphere reserves have been established.
- The first one was the Hurulu Biosphere Reserve in Sri Lanka, which was designated in 1977 and comprises 25,500 hectares within the tropical dry evergreen forest.
- In India, the first biosphere reserve was designated by UNESCO in 2000 within the blue mountains of the Nilgiris

### Diverse systems

- South Asia has a very diverse set of ecosystems. To begin with, Bhutan, India and Nepal combined have thousands of glaciers, surrounded by lakes and alpine ecosystems.
- The Khangchendzonga Biosphere Reserve, established in 2018, is a good model.
- It includes some of the highest ecosystems in the world, with elevations up to 8,586 metres.
- The reserve is home to orchids and rare plant species. At the same time, more than 35,000 people live there.



- Their main economic activities are crop production, animal husbandry, fishing, dairy products and poultry farming.
- Bangladesh, India, the Maldives, and Sri Lanka all have extensive coastlines, with coral reefs and mangrove forests.
- These areas are exposed to extreme weather events (storms, floods, droughts), and sea-level rise.
- The Maldives are recognised as the lowest-lying country in the world, with a mere elevation of 1.5 metres above the high tide mark. Together with UNESCO,
- Run on science-based plans UNESCO Biosphere Reserves have all developed science-based management plans, where local solutions for sustainable human living and nature conservation are being tested and best practices applied.
- Issues of concern include biodiversity, clean energy, climate, environmental education, and water and waste management, supported by scientific research and monitoring.
- The aim is to detect changes and find solutions to increase climate resilience. All biosphere reserves are internationally recognised sites on land, at the coast, or in the oceans.
- Governments alone decide which areas to nominate. Before approval by UNESCO, the sites are externally examined.
- If approved, they will be managed based on an agreed plan, reinforced by routine checks to ensure credibility, but all remain under the sovereignty of their national government.
- The priority countries Bangladesh, Bhutan, and Nepal are on the priority list of UNESCO, because they do not yet have any biosphere reserves.
- Their governments are already working on their first nomination files.
- Our organisation also believes that it would be important to increase the number of biosphere reserves in India, the Maldives and Sri Lanka.

## **THE HINDU**

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### **Public health management cadre**

- In April this year, the Union government released a guidance document on the setting up of a 'public health and management cadre' (PHMC) as well as revised editions of the Indian Public Health Standards (IPHS) for ensuring quality health care in government facilities.

- The 'public health and management cadre' is a follow up of the recommendations made in India's National Health Policy 2017.
- At present, most Indian States (with exceptions such as Tamil Nadu and Odisha) have a teaching cadre (of medical college faculty members) and a specialist cadre of doctors involved in clinical services.
- This structure does not provide similar career progression opportunities for professionals trained in public health.
- It is one of the reasons for limited interest by health-care professionals to opt for public health as a career choice
- The proposed public health cadre and the health management cadre have the potential to address some of these challenges.
- The COVID-19 pandemic changed the status quo.
- For months together, everyone was looking for professionals trained in public health and who had field experience; they were simply far and few.
- It became clear that 'epidemic' and 'pandemic' required specialised skills in a broad range of subjects such as epidemiology, biostatistics, health management and disease modelling, to list a few.
- A public health workforce has a role even beyond epidemics and pandemics. A trained public health workforce ensures that people receive holistic health care, of preventive and promotive services (largely in the domain of public health) as well as curative and diagnostic services (as part of medical care).
- A country or health system that has a shortage of a public health workforce and infrastructure is likely to drift towards a medicalised care system.
- The Fifteenth Finance Commission grant for the five-year period of 2021- 26 and the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) allocations are available for strengthening public health services and could be used as catalytic funding which should be used in the interim as States embark upon implementing the PHMC and a revised IPHS.

#### **THE HINDU**

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## Inflation

Surging inflation is forcing many poor Indians to rein in spending, threatening a slowdown for companies such as Godrej Appliances which saw bumper sales as recently as March and April after a brutal heatwave spiked demand for its cooling products.

The Ukraine crisis and global supply chain disruptions have stoked prices worldwide, but people in developing countries such as India are more vulnerable to even small cost increases that can wreck their meagre budgets.

### THE HINDU

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## QUAD

The initiative of the four Quad countries (India, the U.S., Australia and Japan), which aims to manufacture and distribute at least 1 billion COVID-19 vaccines for the Asia region by the end of 2022, has run into challenges.

The Quad is working “assiduously” to get Indian regulatory approvals to get the Quad Vaccine Initiative (QVI) off the ground.

Original plan, which was launched in March 2021 and sought to supply Johnson & Johnson vaccines from the Biological E facility in Hyderabad,

has had trouble taking off due to legal indemnity issues with Indian law, safety concerns around the vaccine, lack of World Health Organisation (WHO) approvals for the facility.

### About QUAD

Known as the 'Quadrilateral Security Dialogue' (QSD), the Quad is an informal strategic forum comprising four nations, namely United States of America (USA), India, Australia and Japan. One of the primary objectives of the Quad is to work for a free, open, prosperous and inclusive Indo-Pacific region.

The group met for the first time in 2007 on the sidelines of the Association of Southeast Asian Nations (ASEAN). It is considered an alliance of maritime democracies, and the forum is maintained by meetings, semi-regular summits, information exchanges and military drills of all the member countries.

### Formation of QUAD

Since its establishment in 2007, the representatives for the four-member nations have met periodically. Japanese Prime Minister Shinzo Abe was the first to pitch the idea for the formation of Quad in 2007.

In fact, its origins can be traced back to the evolution of Exercise Malabar and the 2004 Tsunami when India

conducted relief and rescue operations for itself and neighbouring countries and was later joined by the US, Japan and Australia.

### Principles of Quad

The motive behind the Quad is to keep the strategic sea routes in the Indo-Pacific free of any military or political influence.

It is basically seen as a strategic grouping to reduce Chinese domination.

The core objective of the Quad is to secure a rules-based global order, freedom of navigation and a liberal trading system. The coalition also aims to offer alternative debt financing for nations in the Indo-Pacific region.

The Quad leaders exchange views on contemporary global issues such as critical and emerging technologies, connectivity and infrastructure, cyber security, maritime security, humanitarian assistance, disaster relief, climate change, pandemic and education.

### Significance of Quad for India

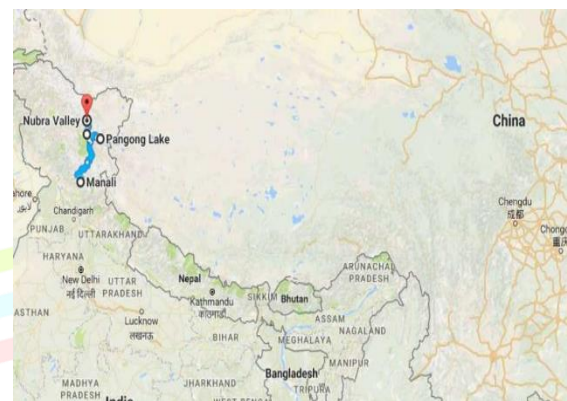
It is believed that the forum strategically counters China's economic and military rise. Interestingly, if Chinese hostilities rise on the borders, India can take the support of the other Quad

nations to counter the communist nation.

In addition, India can even take the help of its naval front and conduct strategic explorations in the Indo-Pacific region.

## THE HINDU

### Pangong Lake



Pangong Lake is a long boomerang-shaped endorheic (landlocked) water body.

It is located at an elevation of roughly more than 4,200 meters (13,800 ft) above sea level.

It is a trans border lake spanning across eastern Ladakh and western

Tibet, with a length of more than 135 km.

It is around 5 km wide at its broadest point.

Around 40% of the lake lies within the Indian Territory, 50% in Tibet (China), and the rest 10% is reportedly disputed between the two and is a de facto buffer zone.

Practically China controls 2/3rd of the total length while the rest is controlled by India.

The lake is considered brackish (saline) with no life in it, however, it is the western part of the lake (In India) which is saline, and the eastern part of the lake (In China) is freshwater.

There are certain fishes that are found in Pangong Tso, contrary to the belief that it doesn't supports life.

India holds one-third of the 135-km-long Boomerangshaped Lake located at an altitude of over 14,000 feet.

The lake, a glacial melt, has mountain spurs of the Chang Chenmo range jutting down, referred to as fingers.

Approximately 60% of the length of the lake lies within the Tibetan Autonomous Region. The lake is 5 km (3.1 mi) wide at its broadest point. All together it covers 604 km<sup>2</sup>.

During winter the lake freezes completely, despite being saline water. It is not a part of the Indus river basin area and geographically a separate landlocked river basin.

## **THE HINDU**

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### **Lessons from neighbouring countries**

New Delhi's messaging now is focused on people in the neighbourhood rather than just those in power.

In Afghanistan, for example, the Modi government spent months in careful negotiation with Pakistani officials to ensure it could send 50,000 MT of wheat meant for the Afghan people, despite the fact that it has no diplomatic engagement with either Islamabad or Kabul otherwise.

In Sri Lanka, a Ministry of External Affairs statement said that India would "always be guided by the best interests of the people of Sri Lanka expressed through democratic processes", a subtle pitch both to the people and to democratic processes in the region.

A third lesson is perhaps the toning down of rhetoric on domestic issues in the neighbourhood.

Lesson to be learnt is that populism does not pay in the long run

The popularity of a leader can decline sharply and suddenly for one or a combination of reasons.

New Delhi must not only study the causes of the economic mismanagement that brought change in the neighbourhood but must also survey the impact of new vulnerabilities on smaller neighbouring countries that could be exploited by global powers as they seek a more direct influence in the region.

Given the common challenges the region faces, New Delhi must find newer ways to energise regional groupings such as the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and the Bangladesh, Bhutan, India, Nepal (BBIN) Initiative, and even to reconsider SAARC, in order to discuss shared approaches to reviving tourism and exports, supporting South Asian expatriate labour abroad, and building common pools of food and fuel stocks to soften inflationary blows on the South Asian economy.

**THE HINDU**

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## Holes in biodiversity bill

The Biological Diversity Act, 2002 was framed to give effect to the United Nations Convention on Biological Diversity (CBD), 1992, that strives for sustainable, fair and equitable sharing of benefits arising out of the utilisation of biological resources and associated traditional knowledge.

To do this, it formulates a three-tier structure consisting of a National Biodiversity Authority (NBA) at the national level, State Biodiversity Boards (SBBs) at the State level and Biodiversity Management Committees (BMCs) at local body levels.

The primary responsibility of the BMCs is to document local biodiversity and associated knowledge in the form of a People's Biodiversity Register.

The amended Bill was drafted in response to complaints by traditional Indian medicine practitioners, the seed sector, and industry and researchers that the Act imposed a heavy "compliance burden" and made it hard to conduct collaborative research and

investments and simplify patent application processes.

The text of the Bill also says that it proposes to "widen the scope of levying access and benefit sharing with local communities and for further conservation of biological resources."

The Bill seeks to exempt registered AYUSH medical practitioners and people accessing codified traditional knowledge, among others, from giving prior intimation to State biodiversity boards for accessing biological resources for certain purposes.

Environmentalist organisations such as Legal Initiative for Forests and Environment (LIFE) have said that the amendments were made to "solely benefit" the AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) Ministry and would pave the way for "bio piracy."

The modifications will exempt AYUSH manufacturing companies from needing approvals from the NBA and thus will go against one of the core provisions of the Act.

### **What are Mr. Ramesh's objections?**

Mr. Ramesh contended that the Environment Ministry was drawing a distinction between a registered AYUSH practitioner and a company, and exempting the former from the Act.

He said this was an “artificial distinction” as nothing prevented a registered AYUSH practitioner from having informal links with a company structure. These paved the way for potential “abuse of the law,

The provision of requiring companies to seek the approval of the NBA only at the time of commercialisation, and not when applying for a patent, was of concern. The Bill also decriminalised violations, such as bio-piracy and made them civil offences, and this defeated the Act's “deterrent powers.

### **Are there other shortcomings in the Bill?**

An analysis by the Centre for Science and Environment (CSE) and the Down To Earth magazine on how the Biodiversity Act was being practically implemented, pointed out serious shortcomings.

There was no data available barring a few States on the money received from companies and traders for access and benefit-sharing from use of traditional knowledge and resources. It was unclear if companies had even paid communities despite commitments

As of now, the funds were lying unutilised, according to State boards. As per law, Indian pharmaceutical companies are required to pay between 3-5% on the extracted bio resources or between 0.01-0.05 percent on the annual gross ex-factory sales. But companies have resisted paying.

## **THE HINDU**

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### **Monkey pox virus genome**

Researchers from the National Institute of Health Doutor Ricardo Jorge (INSA), Lisbon, Portugal have shared the draft genome sequence of the monkey pox virus that is rapidly spreading in many European countries

Monkey pox is a zoonotic virus, which transmits disease from animals to humans. Cases typically occur near tropical rainforests,



where animals that carry the virus live.

The monkey pox virus is a member of the orthopoxvirus family

Monkey pox is not endemic in Europe or the U.S. but is endemic in a few Central and West African countries. The virus is transmitted from one person to another by close contact with lesions, body fluids, respiratory droplets and contaminated materials.

The increased number of cases from multiple countries have raised concerns about enhanced human-to-human transmission of the virus.

Evidence about increased human-to-human transmission, which is possible only if the virus has undergone any changes to make it easily transmissible among humans, will come from detailed genome sequence analysis.

Monkey pox usually causes very visible skin lesions and hence cannot go unnoticed.

The silent spread, if true, might mean that the virus is able to also

spread without causing symptoms in some infected people.

If monkey pox can indeed spread

Asymptomatically then it would make it harder to track the virus.

## **THE HINDU**

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### **Core mantle boundary**

New research led by the University of Cambridge has found an unusual pocket of rock at the boundary layer with Earth's core, some 3,000 km beneath the surface.

The enigmatic area of rock, which is located almost directly beneath the Hawaiian Islands, is one of several ultra-low velocity zones, which are so-called because earthquake waves slow to a crawl as they pass through them.

Earth's interior is layered like an onion: at the centre sits the iron-nickel core, surrounded by a thick layer known as the mantle, and on top of that a thin outer shell the crust we live on.

Although the mantle is solid rock, it is hot enough to flow extremely slowly. Scientists use seismic waves from earthquakes to see beneath

Earth's surface the echoes and shadows of these waves revealing radar-like images of deep interior topography. But until recently, images of the structures at the core-mantle boundary have been grainy and difficult to interpret.

The researchers used the numerical modelling methods to reveal structures at the core-mantle boundary.

They observed a 40% reduction in the speed of seismic waves travelling at the base of the ultra-low velocity zone beneath Hawaii.

According to the authors, this supports existing proposals that the zone contains much more iron than the surrounding rocks meaning it is denser and more sluggish.

## **THE HINDU**

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### **India Hypertension Control Initiative (IHCI)**

Cardiovascular diseases (CVD) are the leading cause of death among adults in India. One of the major drivers of heart attack and stroke is untreated high blood pressure or hypertension.

Hypertension is a silent killer as most patients do not have any symptoms.

India has more than 200 million people with hypertension, and only 14.5% of individuals with hypertension are on treatment.

Unlike many other diseases, hypertension is easy to diagnose and can be treated with low-cost generic drugs.

India Hypertension Control Initiative (IHCI) is a multi-partner initiative involving the Indian Council of Medical Research, WHO-India, Ministry of Health and Family Welfare, and State governments to improve blood pressure control for people with hypertension.

The project initiated in 26 districts in 2018 has expanded to more than 100 districts by 2022.

More than two million patients were started on treatment and tracked to see whether they achieved BP control.

The project demonstrated that blood pressure treatment and control are feasible in primary care settings in diverse health systems across various States in India.

The project was built on five scalable strategies:

First, a simple treatment protocol with three drugs was selected in

consultation with the experts and non-communicable disease programme managers.

Second, the supply chain was strengthened to ensure the availability of adequate antihypertensive drugs.

Third, patient-centric approaches were followed, such as refills for at least 30 days and assigning the patients to the closest primary health centre or health wellness centre to make follow up easier.

Fourth, the focus was on building capacity of all health staff and sharing tasks such as BP measurement, documentation, and follow-up.

Finally, there was minimal documentation using either paper-based or digital tools to track follow up and BP control

One of the unique contributions of the project was a data-driven approach to improving care and overall programme management.

## **THE HINDU**

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### **Yarara**

A substance found in fruits and vegetables can neutralise the venom of a poisonous pit viper common in

much of South America, Brazilian researchers have discovered.

In Brazil, the Bothrops jararaca, also called “yarara,” is responsible for most of the country’s 26,000 recorded snake bites each year, according to the online Reptile Database.

The study, conducted by Sao Paulo’s Butantan Institute and published in the journal Frontiers in Pharmacology, found that a modified version of the compound rutin, the water soluble succinyl rutin, can delay the effect of a poisonous bite.

The finding could complement standard treatment with antithropic serum.

## **THE HINDU**

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## Food security and wheat export

- The sudden turnaround in the export policy appears to be on account of fears that low public procurement would affect domestic food security.
- The system of public procurement has been in place since the mid-1960s, and has been the backbone of food policy in India.
- Progressive economists and social scientists have always argued that for a country the size of India, food security has to be ensured through domestic production.
- This summer, procurement of wheat by the Food Corporation of India (FCI) has been very low. Last year, the FCI and other agencies procured 43.34 million tonnes of wheat.
- For the current season, procurement has only been 17.8 million tonnes, as of May 10, 2022.
- Given the low levels of procurement, the Government has reduced the procurement target for the current season from 44.4 to 19.5 million tonnes.
- While wheat production this year has been lower than estimated on account of high heat and other factors in March, there is not a big shortfall in production relative to previous years.
- Wheat production was 103.6 million tonnes in 2018-19, 107.8 million tonnes in 2019-20, and 109.5 million tonnes in 2020-21.
- It was expected to be a record 111.3 million tonnes for the ongoing year (2021-22).
- There is, of course, a projection of a global reduction in production and trade on account of the war in Ukraine.
- Both Russia and Ukraine were major exporters of wheat in the global market and disruptions from the war are affecting countries that relied on imports from these two countries, such as Egypt.
- India has been urged by developed countries to meet this shortfall and provide relief to importing countries.
- It is essential that the PDS and open market operations be used to cool down food price inflation
- To promote production, a key aspect of food policy in India has been to provide remunerative prices to farmers.
- As is well known, after the reports of the National Commission on Farmers, the announced minimum support price (MSP) for wheat has often been inadequate to cover costs of cultivation for several regions and classes of farmers,

especially if comprehensive costs (or Cost C2) are taken as the base.

## **THE HINDU**

### **Myopia prevalence**

- Millions of young children are growing up short-sighted every year because of myopia.
- The World Health Organization (WHO) estimates that there were nearly two billion people with myopia in 2010 a quarter of the human population. By 2030, they project myopia prevalence to reach 3.3 billion people
- Myopia is commonly found in children.
- As they grow and their bodies' change, the length of the eyeball and its power to refract light do not always align, leading to vision that is blurry.
- A pair of spectacles is enough to correct this mismatch. However, spectacles address the symptom and not the cause (eyeball length), so myopia can progress all through childhood.
- Progressive myopia, after a point, leads to 'high' myopia, increasing the risk of retinal detachment, glaucoma or macular degeneration that can cause permanent vision loss.
- A host of environmental and genetic factors determine the onset of myopia. It is believed that exposure to sunlight and a healthy balance between distance- and near work can arrest myopia onset and progression.
- Many children, especially in urban environments, are spending more time indoors and on near-work.
- Be it at school or at home, the quantum of near-work looking at books, television, phones or laptops has increased over the decades.
- Despite a demographic shift towards cities and towns, nearly 65% of India's population still lives in rural areas.
- As urbanisation increases, so does the burden of myopia.
- Myopia can be twice as high among urban children when compared to rural ones.

## **THE HINDU**

### **Iran regional centrality**

- With an area of 1.6 million sq km, Iran is the 18th largest country in the world in terms of area.
- It shares land borders with Pakistan, Afghanistan, Turkmenistan, Azerbaijan, Armenia, Turkey and Iraq and maritime borders with Kuwait, Bahrain, Saudi Arabia, Qatar, the UAE, and Oman.
- In May 2003, and after America's success in the Iraq war, Iran offered

through the Swiss intermediary full negotiations with the U.S. This was ignored by the George Bush administration.

- In October 2003, the Tehran Declaration was reached between Iran and the European Union (EU). Iran agreed to cooperate fully with the International Atomic Energy Agency (IAEA) including the Additional Protocol, and temporarily suspend all uranium enrichment.
- In September and October 2003, the IAEA conducted several facility inspections. In July 2015, the Joint Comprehensive Plan of Action (JCPOA) was concluded between Iran and the P5+1 and the EU.
- The Donald Trump administration certified Iran's compliance with the agreements twice in 2017, but in May 2018, withdrew from it promising a better deal.
- This did not happen. After changes of administration in both Tehran and Washington, quiet negotiations were resumed in Vienna in the expectation of an early success with an Iranian insistence on returning to the original terms of the JCPOA.
- The Ukraine war and the western regime of sanctions on Russia become an impediment; so is the Iranian insistence that U.S. sanctions be lifted on the Islamic

Revolutionary Guard Corps, so effective in Iraq, Syria and with Hezbollah, and also playing a role in the Iranian economy.

- Some of the Gulf Cooperation Council states are supporting a powerful U.S.-lobby in this endeavour.
- In the final analysis, the U.S. has a difficult choice between its strategic objectives, requirements, and capabilities in West Asia in relation to Israel and the conservative Arab bloc on the one hand and with the reality of Iran's regional centrality and its implications, on the other.

#### **THE HINDU**

#### **Look out Circular**

- The story so far:
- On April 5, the Punjab and Haryana High Court while quashing a Look Out Circular (LOC) against petitioner Noor Paul passed omnibus instructions to the respondents including the Ministry of Home Affairs (MHA) and the Bureau of Immigration (BOI) to serve a copy of the LOC to the affected person, state the reasons for issuing the LOC "as soon as possible" and provide a "post-decisional opportunity."

#### **What is a look out circular?**

- It is a notice to stop any individual wanted by the police, investigating agency or even a bank from leaving or entering the country through designated land, air and sea ports.
- The immigration is tasked to stop any such individual against whom such a notice exists from leaving or entering the country. There are 86 immigration check posts across the country.

### **Who can issue LOCs?**

- A large number of agencies which includes the Central Bureau of Investigation (CBI), Enforcement Directorate, Directorate of Revenue Intelligence (DRI), Income Tax, State police and intelligence agencies are authorised to generate LOCs.
- The officer should not be below the rank of a district magistrate or superintendent of police or a deputy secretary in the Union Government the MHA in 2018 brought changes to the 2010 guidelines authorising the chairman, managing director and chief executives of all public sector banks to generate LOCs against persons who could be detrimental to economic interests of the country.
- The 2010 Ministry guidelines give sweeping powers to police and intelligence agencies to generate LOCs in “exceptional cases” without

keying in complete parameters or case details against “suspects, terrorists, anti-national elements, etc, in larger national interest.

- The MHA has asserted that “LOCs cannot be shown to the subject” at the time of detention nor can any prior intimation be provided.
- The Ministry recently informed the Punjab and Haryana High Court that the LOC guidelines are a secret document and the same cannot be shared with the ‘accused’ or any unauthorised stakeholder; it cannot be provided or shown to the subject at the time of detention.

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### **THE HINDU**

### **AI Chips**

#### **What are AI chips?**

- AI chips are built with specific architecture and have integrated AI acceleration to support deep learning-based applications.
- Deep learning, more commonly known as active neural network (ANN) or deep neural network (DNN), is a subset of machine learning and comes under the broader umbrella of AI.
- It combines a series of computer commands or algorithms that stimulate activity and brain structure.

- DNNs go through a training phase, learning new capabilities from existing data.
- DNNs can then inference, by applying these capabilities learned during deep learning training to make predictions against previously unseen data.
- Deep learning can make the process of collecting, analysing, and interpreting enormous amounts of data faster and easier.
- These chips, with their hardware architectures and complementary packaging, memory, storage and interconnect technologies, make it possible to infuse AI into a broad spectrum of applications to help turn data into information and then into knowledge.
- There are different types of AI chips such as application-specific integrated circuits (ASICs), field-programmable gate arrays (FPGAs), central processing units (CPUs) and GPUs, designed for diverse AI application.

#### **Are they different from traditional chips?**

- When traditional chips, containing processor cores and memory, perform computational tasks, they continuously move commands and

data between the two hardware components.

- These chips, however, are not ideal for AI applications as they would not be able to handle higher computational necessities of AI workloads which have huge volumes of data.
- In comparison, AI chips generally contain processor cores as well as several AI-optimised cores (depending on the scale of the chip) that are designed to work in harmony when performing computational tasks.

#### **What are their applications?**

- Semiconductor firms have developed various specialised AI chips for a multitude of smart machines and devices, including ones that are said to deliver the performance of a data centre-class computer to edge devices.
- Some of these chips support in-vehicle computers to run state-of-the-art AI applications more efficiently.
- AI chips are also powering applications of computational imaging in wearable electronics, drones, and robots.
- Additionally, the use of AI chips for NLP applications has increased due to the rise in demand for chatbots



and online channels such as Messenger, Slack, and others.

- They use NLP to analyse user messages and conversational logic.
- Then there are chipmakers who have built AI processors with on-chip hardware acceleration, designed to help customers achieve business insights at scale across banking, finance, trading, insurance applications and customer interactions.

**THE HINDU**

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REPORTER

## Indo-Pacific Economic Framework for Prosperity (IPEF)

- India signalled its readiness to be part of a new economic initiative led by the U.S. for the region, as Prime Minister Narendra Modi joined U.S. President Joseph Biden, Japanese Prime Minister Fumio Kishida and leaders of 10 countries, who participated virtually, for the launch of the Indo-Pacific Economic Framework for Prosperity (IPEF) in Tokyo on Monday.
- The negotiations for the IPEF, which will begin on Tuesday, are expected to centre around four main pillars, including trade, supply chain resiliency, clean energy and decarbonisation, and taxes and anti-corruption measures.
- The grouping, which includes seven out of 10 members of the Association of South East Asian Nations (ASEAN), all four Quad countries, and New Zealand, represents about 40% of global GDP.
- “India will work together with [other IPEF countries] to build an inclusive and flexible Indo-Pacific Economic Framework,”
- Resilient supply chains must be based on three-pillar foundation of trust, transparency and timeliness

and I am sure that this framework will make these pillars strong and lead to peace and prosperity in the Indo-Pacific region.

- IPEF would not be a “free trade agreement”, nor are countries expected to discuss reducing tariffs or increasing market access.
- In that sense, the IPEF would not seek to replace the 11-nation CPTPP (Trans-Pacific Partnership) that the U.S. quit in 2017, or the RCEP, which China, and all of the other IPEF countries (minus the U.S.) are a part of.
- Three ASEAN countries considered closer to China Myanmar, Cambodia and Laos are not members of the IPEF, however.

### THE HINDU

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#### Family planning

- India’s family planning programme has improved access to contraceptives. This has led to a reduction in the Total Fertility Rate from 3.4 in 1990-92 to 2.0 in 2019-21, according to the National Family Health Survey (NFHS).
- However, there are two themes that need further attention. First, according to NFHS-5 and the 2022 report by the United Nations Population Fund, there is a rise in

adolescent childbearing in some States such as Tripura and Meghalaya.

- Second, COVID-19 has had a severe impact on economic resources and access to education, thereby influencing the choices women and the youth make about their sexual and reproductive health.
- In order to meet the Sustainable Development Goal of Family Planning by 2030, India now needs to focus on improving access to family planning services for not just the adult population, but also the youth.
- In India, frontline health workers have contributed significantly in implementing Mission Parivar Vikas, which aims to accelerate access to high-quality family planning choices, to successfully increase the modern Contraceptive Prevalence Rate (mCPR), especially among female non-users from vulnerable communities.
- We need to strengthen the capacity of health workers in using the Family Planning Logistics Management Information System a dedicated software to ensure the smooth forecasting, procurement and distribution of family planning commodities across all the levels of health facilities to ensure the availability of and access to

contraceptives by marginalised communities.

- The Men in Maternity (MiM) study conducted in Delhi demonstrated the effectiveness of teaching young couples about contraceptives and promoting joint decision making in choosing family planning methods.
- Several other examples of involving men in the family planning discourse include the PRACHAR project in Bihar, the Yaari Dosti programme in Mumbai, and the GEMS project in Goa.
- Many of the programmes in public health have also started leveraging the capabilities of the private sector to improve service delivery.
- For instance, leveraging India Post and partnering with a third-party logistics partner through the Informed Push Model showcases how the private sector can be effectively engaged to provide family planning products at health facilities and make them available when the community needs them.

## **THE HINDU**

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### **Cryptocurrency price fall**

#### **The story so far:**

- Bitcoin, the most dominant cryptocurrency around, is down

more than 50% from an all-time high price of \$68,000, which it achieved just last November.

- It has, in fact, lost a fourth of its value in the last 30 days.
- Bitcoin isn't alone. The prices of almost all cryptocurrencies have seen a similar steep downward movement over the last month.

### **Is the Bitcoin price fluctuation a new phenomenon?**

- It isn't. Its history is filled with many instances of big price falls and big price rises within a short period of time. Last year, after hitting a new peak of over \$63,000 in April, its value more than halved by June.
- China's crackdown on cryptocurrency mining operations was seen as the main reason for this fall.
- What's new about this phase of the cryptocurrency price fall? The context is, of course, new.
- This big sell-off phase has come about at a time when the war in Ukraine and the subsequent disruptions to the global supply chain have resulted in record-high inflation throughout the world. Inflation in the U.K., for instance, is at its highest levels in 40 years.

### **What vulnerability was revealed during this crash?**

- The Bitcoin value also got impacted by what's essentially a sub-story in the entire episode the fate of a stable coin called TerraUSD.
- Stable coins are a type of cryptocurrency that seek to hold their value steady, even if the Bitcoins of the world have a rocky journey. This, they do by pegging to a currency such as the dollar.
- TerraUSD's idea was to maintain a value of \$1. The way it maintains its peg is through an algorithmic solution, wherein if it drops below \$1, a trader is encouraged to receive a 'sister' token called Luna at a discounted price in exchange.
- The TerraUSD, for which Luna was exchanged, then goes out of circulation. The supply falls, and the peg to \$1 is achieved again.

## **THE HINDU**

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### **Disaster struck Dima Hasao**

#### **The story so far:**

- Disaster struck Dima Hasao, central Assam's hill district, in mid-May after incessant heavy rainfall.
- The 170 km railway line connecting Lumding in the Brahmaputra Valley's Hojai district and Badarpur in the

Barak Valley's Karimganj district was severely affected

### **How severe has the rain been in Assam?**

- Assam is used to floods, sometimes even four times a year, resultant landslides and erosion.
- But the pre-monsoon showers this year have been particularly severe on Dima Hasao, one of three hill districts in the State.
- Landslips have claimed four lives and damaged roads.

### **Why is the railway in focus post-disaster?**

- Dima Hasao straddles the Barail, a tertiary mountain range between the Brahmaputra and Barak River basins.
- The district is on the Dauki fault (the prone-to-earthquakes geological fractures between two blocks of rocks) straddling Bangladesh and parts of the northeast. British engineers were said to have factored in the fragility of the hills to build the railway line over 16 years by 1899.
- The end result was an engineering marvel 221 km long over several bridges and through 37 tunnels, laid along the safer sections of the hills.
- A project to convert the metre gauge track to broad gauge was

undertaken in 1996 but the work was completed only by March 2015 because of geotechnical constraints and extremist groups.

- The broad-gauge track was realigned to be straighter, but a 2009-10 audit report revealed that the project had been undertaken without proper planning and visualisation of the soil strata behaviour.
- Citing an engineering and geology expert, the report gave the example of the disaster-prone Tunnel 10 on the realigned track that was pegged 8 meters below the bed of a nearby stream.
- Retired railway officials admitted that faulty experiments and the "greed" of a few not only made the track vulnerable to the forces of nature but also escalated the cost of the project from ₹1,677 crore to ₹5,500 crore.

### **Is only the railway at fault?**

- There is a general consensus that other factors have contributed to the situation Dima Hasao is in today.
- Roads in the district, specifically the four-lane Saurashtra-Silchar (largest Barak Valley town) East-West Corridor, have been realigned or deviated from the old ones that were planned around rivers and largely weathered the conditions.

### **How vital are the rail and highway through Dima Hasao?**

- Meghalaya aside, Dima Hasao is the geographical link to a vast region comprising southern Assam's Barak Valley, parts of Manipur, Mizoram and Tripura.
- This region has an alternative, less disaster-prone highway through Meghalaya linking the country beyond and may not thus be impacted by any damage to the four-lane highway through Dima Hasao, once it is completed.
- But the Lumding-Badarpur railway line has been the lifeline for this region since goods trains started operating in March 2015.
- Moreover, this track is vital for India's Look East policy that envisages shipping goods to and from Bangladesh's Chittagong port via Tripura's border points at Akhaura and Sabroom, the last railway station near the Feni River that serves as the India-Bangladesh border.
- The Dima Hasao line also links the ambitious 111 km Jiribam-Imphal railway project in Manipur being built on similar, landslide-prone terrain.
- There are plans to extend the Jiribam-Imphal line, which will have India's tallest railway bridge and the

longest railway tunnel, to Myanmar and beyond.

- Such plans seem distant with Tripura and Mizoram indicating they cannot always rely on the rail connectivity through Dima Hasao.

### **THE HINDU**

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#### **Mutant tomatoes**

- According to estimates made in 2020 nearly 690 million people, who make up close to 8.9% of the world's population, are hungry. One of the main reasons for this hunger is micronutrient malnutrition.
- A paper in Nature Plants by Jie Li et al tries to address vitamin D deficiency by genetically modifying tomato plants so that the fruit contains a significant amount of provitamin D3 which is a precursor from which humans can make vitamin D.
- Vitamin D is needed for a process known as calcium homeostasis which is the maintenance of constant concentration of calcium ions in the body.

#### **Mutant tomatoes**

- Recently discovered pathway in tomato plants to produce cholesterol and a substance called steroidal glycoalkaloid (SGA for

short) using the CRISPR-Cas9 gene editing tool.

- This inhibits the conversion of 7-DHC to cholesterol and instead the former accumulates in the leaves, green and ripe fruits.
- Usually, in untreated tomato plants, 7-DHC is present in leaves and to a lower extent in green fruit, but not in ripe fruit which is the most consumed of the lot.
- The researchers showed that in their modified plants, the suppression of the activity of a particular gene, “led to substantial increases of 7-DHC levels in leaves and green fruit,” and, according to the paper, while levels of 7-DHC were lower in ripe fruits of the mutant, they remained high enough that if converted to Vitamin D3 by shining UVB light, the amount in one tomato would be equivalent to that in two eggs or 28 grams of tuna, both of which are recommended sources of vitamin D.
- In addition, the researchers report that the mutants showed a reduction in their leaves of a substance called alpha-tomatine, and they comment that this may even be beneficial because of alpha-tomatine’s reported toxicant or anti-nutritional activity.

**THE HINDU**

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## Heatwaves and Inflation

- Moody’s Investors Service said on Monday that the prolonged heatwaves seen in India this summer were credit negative as they would exacerbate inflation pressures and challenges to growth.
- The agency added that the ban on wheat exports would hurt growth and reflected a missed opportunity to capture the global market.
- Noting that New Delhi experienced its fifth heatwave since March on May 15, Moody’s pointed out that such waves usually occurred in May and June.
- “The prolonged high temperatures, which are affecting much of the northwest of the country, will curb wheat production and could lead to extended power outages, exacerbating already high inflation and hurting growth, a credit negative.
- Moody’s warned of prolonged power outages in industrial and agricultural production if this persisted, leading to significant cuts to output and weighing further on India’s economic growth ‘particularly if the heatwaves continue beyond June’.
- Inflation, it noted, will only be partially alleviated by measures such

as the central bank's policy rate hikes, cap on power prices in exchanges, and the wheat export ban.

- "Given the prominence of cereals and food more generally in India's consumption, elevated food prices could add to social risks if they persist.

**THE HINDU**

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GES  
REPORTER



## Draft notification on e waste

- Consumer goods companies and makers of electronics goods have to ensure at least 60% of their electronic waste is collected and recycled by 2023 with targets to increase them to 70% and 80% in 2024 and 2025, respectively, according to a draft notification by the Environment Ministry
- The rules bring into effect a system of trading in certificates, akin to carbon credits, that will allow companies to temporarily bridge shortfalls.
- A wide range of electronic goods, including laptops, landline and mobile phones, cameras, recorders, music systems, microwaves, refrigerators and medical equipment, have been specified in the notification.
- Along with specifying targets, the rules lay out a system of companies securing extended producer responsibility (EPR) certificates.
- These certificates certify the quantity of e-waste collected and recycled in a particular year by a company and an organisation may sell surplus quantities to another company to help it meet its obligations.
- “The earlier rules stressed collection targets. Now we are emphasising the EPR, recycling and trading. This follows from the government’s objective to promote a circular economy,”
- Companies will have to register on an online portal and specify their annual production and e-waste collection targets.
- The chief entity that will coordinate the trade of EPR certificates and monitor if companies are meeting their targets is the Central Pollution Control Board (CPCB).
- Companies that don’t meet their annual targets will have to pay a fine or an “environmental compensation”, but the draft doesn’t specify the quantum of these fines.
- In fact, companies that fall short can meet a year’s target, even after three years.
- Those that meet their targets with a year’s delay will be refunded 85% of their fine, and 60% and 30% after the second and third year, respectively.
- The EPR requires producers to set up e-waste exchange facilities to facilitate collection and recycling, and assign specific responsibility to bulk consumers of electronic products for safe disposal.

- The State governments have been entrusted with the responsibility of earmarking industrial space for e-waste dismantling and recycling facilities, undertaking industrial skill development and establishing measures for protecting the health and safety of workers engaged in the dismantling and recycling facilities for e-waste.
- According to the Global E Waste Monitor 2017, India generates about 2 million tonnes (MT) of e-waste annually and ranks fifth among e-waste producing countries, after the U.S., China, Japan and Germany.
- Most of India's e-waste is recycled by the informal sector and under hazardous conditions and a thrust of the e-waste rules is to have more of this waste handled by the formal sector.
- work within 75 metres of the temple to build public amenities, experts objected to the use of heavy machinery for digging, citing the possibility of an adverse impact on the 12th century temple.
- The ASI later observed that there was "every possibility that the OBCC during the excavation or soil removal might have destroyed the archaeological remains of the heritage site.
- The Jagannath temple has been designated a monument of national importance by the ASI and is a centrally protected monument.
- As per the Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act (AMSAR), construction is prohibited within a 100-metre periphery of a protected area.
- The area extending to 200 metres around the monument in all directions is called a regulated area.
- If construction has to be undertaken in the regulated or prohibited area, permission from the National Monuments Authority (NMA) is required.
- Notably, the term "construction" as defined in the AMSAR Act does not include the construction of public toilets, urinals, and "similar conveniences". It also does not

## **THE HINDU**

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### **Puri heritage corridor**

- The Puri Heritage Corridor Project is a ₹3,200 crore redevelopment project of the 800-year-old Jagannath temple in Puri by the Odisha government to create an international heritage site.
- In February, when the OBCC (Odisha Bridge and Construction Corporation) started excavation

include works for the supply of water, electricity or “provision of similar facilities for publicity.

## **THE HINDU**

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### **QUAD**

#### **What is the Quad and why was it formed?**

- The Quad is an informal multilateral grouping of India, the U.S., Australia, and Japan aimed at cooperation for a free and open Indo-Pacific region.
- The region, composed of two oceans and spanning multiple continents is a hub of maritime trade and naval establishments.
- While not stated explicitly by the leaders, a major basis for the grouping is to check China’s growing influence in the region.
- After the Indian Ocean tsunami in 2004 wreaked havoc in the region now called the Indo-Pacific, India stepped up its rescue efforts not just on its own shores but also provided assistance to its maritime neighbours: Sri Lanka, the Maldives and Indonesia.
- Soon, the disaster relief effort was joined by three other naval powers the U.S., Australia and Japan, with then U.S. President George W. Bush announcing that the four countries

would set up an international coalition to coordinate the massive effort.

- The grouping held a meeting in May 2007 but did not release an official statement.
- The 2007 Indo-U.S. Malabar naval exercises also saw the partial involvement of Japan, Australia and Singapore.
- The exercises and coordination were seen by China as an attempt to encircle it, which termed the grouping as trying to build “an Asian NATO”
- The grouping was only revived an entire decade later in 2017, at a time when all four countries had revised their assessment of the China challenge; and India had witnessed the Doklam standoff.

#### **What were the objectives of the grouping?**

- The March 2021 virtual summit gave rise to the main objectives of the Quad, outlined actionable goals, and formed expert working groups in multiple areas. Coming together to foster a free and open Indo-Pacific formed the bedrock of cooperation.
- “We recommit to promoting the free, open, rules-based order, rooted in international law and undaunted by coercion, to bolster

security and prosperity in the Indo-Pacific and beyond,” the joint statement said.

- Emphasis was laid on “rule of law, territorial integrity, freedom of navigation and overflight, peaceful resolution of disputes, and democratic values” in the region.
- The other areas of immediate focus were the pandemic through strengthening equitable vaccine access for the Indo-Pacific, combating climate change, sharing critical technologies, cyber security, supply chain resilience, and infrastructure and connectivity projects.
- Quad leaders launched the Quad Vaccine Initiative (QVI) with the aim of manufacturing and distributing at least a billion COVID-19 vaccines for the Asia region by the end of 2022.
- Quad nations had also agreed to build joint connectivity projects and transparent infrastructure funding for countries in the region.
- The emphasis on connectivity saw the Quad challenge China in another sphere: a coordinated effort to provide financing and sustainable alternatives to China’s Belt and Road Initiative (BRI), which has led many nations to take loans and accept infrastructure bids from Beijing.

- The Quad also created a working group for combating climate change which would oversee efforts to foster green shipping by decarbonising maritime supply chains and promoting the use of clean hydrogen.

### **What are the future plans of the Quad?**

- According to a statement released by the Ministry of External Affairs about the agenda of the May 24 summit, “The Leaders will review the progress of Quad initiatives and Working Groups, identify new areas of cooperation and provide strategic guidance and vision for future collaboration”.
- The Quad summit is expected to discuss the Russian war in Ukraine, and the impact of three months of Western sanctions.
- Mr. Biden said yesterday that the world was “navigating a dark hour” with Russia’s attack on Ukraine, adding that the war made evident the need for decent international order.
- (India is the only member of the Quad that has not joined sanctions against Russia, while also ramping up its intake of Russian oil an estimated 40 million barrels more than it had in all of 2021).

- Mr. Biden also unveiled the 'Indo-Pacific Economic Framework' (IPEF) on May 23, which, according to Reuters is a programme to bind countries in the region more closely through common standards in areas including supply-chain resilience, clean energy, infrastructure and digital trade.
- At India was likely to be cautious about its participation in the Indo-Pacific Economic Framework as it could be seen as a counter to the 15-nation Regional Comprehensive Economic Partnership and the 17-nation Trans-Pacific Partnership that China is a member of.
- Quad members also launched a maritime monitoring plan to curb illegal fishing in the Indo-Pacific.
- Several countries have objected to Chinese fishing vessels often violating their exclusive economic zones resulting in economic losses, while also engaging in deep-sea trawling, which causes environmental damage.
- While the State governments are responsible for the establishment and management of the registration system, the Registrar General of India (RGI), who is appointed by the Central government, coordinates and unifies the activities of registration.
- Based on a comparison with the vital rates obtained from the sample survey called the Sample Registration System (SRS), the RGI estimated that the country registered about 92.7% of births and 87.8% of deaths in 2019. Corresponding figures for 2020 are not available.
- COVID-19 resulted in prolonged lockdowns. These could have significantly affected the efficiency of the CRS in the following manner.

- One, the registrars could not work during lockdowns in many areas.
- Two, people could not travel to the registrar's office to report the births/deaths that had occurred at home within the prescribed time.
- Three, in case of a delay of more than 30 days in reporting, the procedure of getting an affidavit or a Magistrate's order as required under Section 13 of the RBD Act is cumbersome. Since it is a requirement under the Act, it could

## **THE HINDU**

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### **CRS**

- The registration of births and deaths is governed by the Registration of Births and Deaths (RBD) Act, 1969.

not be relaxed through executive orders.

- Four, in some States, the functionaries handling registration were deployed on COVID-19-related duties and could not register the events.

### **Section 295A of IPC**

- maliciously hurt religious sentiments (Section 295A in the IPC)
- The Legislative Assembly debates at the introduction of Section 295A expressed concern about its subjectivity that could be misused. The rationale behind the provision was to deal with intentional insults to religion or outraging religious feelings
- It was anticipated that it could be misused to suppress honest, candid, and bona fide criticism, and hinder historical research towards social reform.
- The judiciary laid down two ways to measure the effect one by establishing a link between speech and public disorder, and by measuring the effects from the standards of a reasonable man, and not from one who fears all hostile viewpoints.
- Unlike bodily harm that can be verified, sentimental hurt cannot be tested against strict measures

- India's Constitution celebrates diversity with the guarantee of free speech.

### **THE HINDU**

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### **Union of India vs Mohit Minerals**

- On May 19, in Union of India vs Mohit Minerals, the Supreme Court of India delivered a ruling which is likely to have an impact far wider than what the Centre might have imagined when it brought the case up on appeal.
- At stake was the validity of a levy imposed on importers, of Integrated Goods and Services Tax (IGST) on ocean freight paid by foreign sellers to foreign shipping lines.
- The Gujarat High Court had declared the tax illegal. The Supreme Court affirmed the ruling
- It held, for instance, that both Parliament and the State legislatures enjoy equal power to legislate on Goods and Services Tax (GST), and that the Goods and Services Tax Council's recommendations were just that: recommendations that could never be binding on a legislative body.
- Reacting to the ruling, the Union Ministry of Finance has claimed that

it “does not in any way lay down anything new”, and that it “does not have any bearing on the way GST has been functioning in India, nor lays down anything fundamentally different to the existing framework of GST.

- What Mohit Minerals holds, though, is that State governments, on a proper construal of the Constitution, need to hardly feel circumscribed by any such limitation.
- As such, according to the Court, State legislatures possess the authority to deviate from any advice rendered by the GST Council and to make their own laws by asserting, in the process, their role as equal partners in India’s federal architecture.
- In July 2017, the Union government introduced the GST regime through the 101st constitutional Amendment, it did so based on an underlying belief that tax administration across India needed unification. ‘One Nation, One Tax’, was the mantra.
- To give effect to this idea, many entries in the State list of Schedule VII of the Constitution were either deleted or amended.
- No longer could State governments, for example, legislate on sale or purchase of goods (barring a few exceptions, such as petroleum and liquor) through the ordinary legislative route. Instead, a power to legislate on GST was inserted through a newly introduced Article 246A.
- This provision overrode the general dominion granted to Parliament and State legislatures to bring laws on various subjects and afforded to them an express authority to make legislation on GST.
- In addition, the 101st Amendment also established, through Article 279A, a GST Council.
- This body comprises the Union Finance Minister, the Union Minister of State for Finance, and Ministers of Finance from every State government.
- The Council was given the power to “make recommendations to the Union and States” on several different matters.
- These include a model GST law, the goods and services that may be subjected to or exempted from GST and the rates at which tax is to be levied.
- Article 246A, which was introduced by the 101st Amendment, is one such clause.
- The provision provides concomitant power both to the Union and to the

State governments to legislate on GST.

- It does not discriminate between the two in terms of its allocation of authority.
- That allocation, according to the Court, cannot be limited by a reading of Article 279A, which establishes a GST Council, and which treats the Council's decisions as "recommendations."
- Today, because of the ruling in Mohit Minerals, State governments will be free to exercise independent power to legislate on GST.
- It is possible that this might lead to conflicting taxation regimes, with the idea of 'One Nation One Tax' rendered nugatory.
- But as the Court puts it, "Indian federalism is a dialogue between cooperative and uncooperative federalism where the federal units are at liberty to use different means of persuasion ranging from collaboration to contestation."

**THE HINDU**

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## Monkey virus

### What is the monkey pox virus?

- Monkey pox is not a new virus.
- The virus, belonging to the poxvirus family of viruses, was first identified in monkey's way back in 1958, and therefore the name.
- The first human case was described in 1970 from the Democratic Republic of Congo and many sporadic outbreaks of animal to human as well as human to human transmission has occurred in Central and West Africa in the past with significant mortality
- Since the transmission occurs only with close contact, the outbreaks have been in many cases self-limiting.
- While monkeys are possibly only incidental hosts, the reservoir is not known.
- It is believed that rodents and non-human primates could be potential reservoirs.

### Does the virus mutate?

- Monkey pox virus is a DNA virus with a quite large genome of around 2,00,000 nucleotide bases.
- While being a DNA virus, the rate of mutations in the monkey pox virus is significantly lower (~1-2 mutations

per year) compared to RNA viruses like SARS-CoV-2.

## THE HINDU

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### Taiwan

#### What is the Taiwan issue?

- Taiwan is an island territory located off the coast of mainland China, across the Taiwan Strait.
- After their defeat to the communist forces in the Chinese civil war (1945-1949), the ruling Kuomintang (Nationalist) government of China fled to Taiwan.
- They transplanted the Republic of China (ROC) government in Taiwan, while the Communist Party of China (CPC) established the People's Republic of China (PRC) in the mainland. Since then, the PRC considers the island as a renegade province awaiting reunification by peaceful means, if possible. Meanwhile, the ROC retained its membership at the United Nations and its permanent seat at the UN Security Council (UNSC).
- However, with the shifting geopolitics of the Cold War, the PRC and the U.S. were forced to come together in the 1970s to counter the growing influence of the USSR.

- This led to the US-China rapprochement demonstrated by the historic visit of then U.S. President Richard Nixon to PRC in 1972.
- The same year, the PRC displaced ROC as the official representative of the Chinese nation at the UN. Diplomatic relations with the PRC became possible only if countries abided by its “One China Principle” recognising PRC and not the ROC as China.

### **How has the U.S’s stance on the Taiwan question evolved vis-à-vis China?**

- The very foundation of the U.S. rapprochement as well as its recognition of the PRC is a mutual understanding on the Taiwan question.
- This has been outlined in three documents the Shanghai Communique (1972), the Normalisation Communique (1979) and the 1982 Communique.
- According to the 1972 communique, the U.S. agreed to the ‘one China principle’, with an understanding that it “acknowledges” and “does not challenge” that “all Chinese on either side of the Taiwan Strait maintain that there is but one China and that Taiwan is a part of China.”

### **Why is the issue significant today?**

- As Taiwan’s democracy flourished, the popular mood drifted towards a new Taiwanese identity and a pro-independence stance on sovereignty.
- The past decade has seen considerable souring of ties across the Strait, as the Democratic People’s Party (DPP) became the most powerful political force in Taiwan, sweeping two consecutive elections in the past decade.
- The DPP government, led by Tsai Ing Wen has been catering to the pro-independence constituency in Taiwan and seeks to diversify economic relations away from China. This has made China wary of Tsai.
- China has always seen Taiwan as a territory with high geopolitical significance.
- This is due to its central location in the First Island Chain between Japan and the South China Sea, which is seen as the first benchmark or barrier for China’s power projection. U.S. military outposts are scattered throughout this region, and hence, taking control of Taiwan would mean a significant breakthrough as per China’s geostrategic calculus.
- Moreover, its reunification will formally bury the remaining ghosts of China’s “century of humiliation.”

- It is also possible that the Russo-Ukraine conflict might have created a context where a strong message to the adversary becomes essential, especially considering Beijing's wearing patience and Taipei's increasingly pro-independence slant.
- It may have reached the point where strategic ambiguity may be losing its relevance to strategic clarity.
- However, another plausible interpretation can be that this messaging is aimed by the U.S. for eliciting responses and testing the waters to get a feel of China's game plan for the Indo-Pacific, at a time when a grand distraction is underway at the Eurasian-Atlantic theatre.
- This may muddle the level of U.S.'s strategic ambiguity further.

## **THE HINDU**

### **Dietary verification**

- The National Family Health Survey (NFHS)-5 data (2019-20) show an increase in anaemia among adolescent girls by 5% when compared to NFHS-4.
- The Comprehensive National Nutrition Survey 2019 shows that even before the pandemic, consumption of diverse food groups among adolescents was low. The fallout of COVID-19 has further worsened dietary diversity, especially of women, adolescents and children.
- The lockdowns also led to the loss of mid-day meals and interruptions in Weekly Iron Folic Acid Supplementation (WIFS) and nutrition education in schools for adolescent girls.
- First, along with continued service delivery of WIFS, the government's health and nutrition policies need to emphasise on strong compliance to diverse diets and physical activities
- Second, as service delivery platforms to tap adolescents, we need to also think beyond schools, as the diverse plates are first set at home. Young girls need to be equipped with accurate information about adequate and appropriate diets so that they can act as change agents for their families, community, and peer groups.
- Third, the adolescent's nutritional status is related to the burden of multiple micronutrient deficiencies. Currently, 80% of adolescents suffer 'hidden hunger' due to micronutrient deficiencies
- Lastly, the POSHAN Abhiyan (now Mission POSHAN 2.0) strongly

integrates the aspect of under-nutrition and anaemia among women, girls, and children.

## THE HINDU

### Net export of carbon

- The 2009 United Nations Climate Change Conference in Copenhagen witnessed a vociferous argument from countries such as India and China that developed countries who are consuming polluted goods produced elsewhere also have an obligation to clean up the mess.
- The data available from the Organisation for Economic Co-operation and Development (OECD) indicates that India is one of the leading exporters of carbon emissions-embodied products, and that there is a steady increase in the total carbon emissions embodied in exports.
- China is the largest exporter of carbon emissions-embodied products, followed by the U.S., Russia and India.
- India's total carbon emission exports increased from 80.3 million tonnes at the time of it joining the World Trade Organization (WTO) in 1995 to 426.1 million tonnes in 2018.
- The sharp increase in carbon embodied exports brought India closer to that of the U.S.'s carbon emission exports
- Net CO<sub>2</sub> exports can be calculated by taking the difference between carbon emissions-embodied exports and carbon emissions-embodied imports
- While India's net exports of carbon emissions were observed to be the lowest in 2007 (-11.6 million tonnes), at present the net exports are 55.4 million tonnes.
- Another way of calculating the net export of carbon emissions is by taking the difference between domestic carbon emissions embodied in gross exports and foreign carbon emissions embodied in gross exports.
- By using this definition also, there is a steady increase in net exports of carbon emissions from India.
- India's recent export performance has been attributed to petroleum products, electronics and chemicals.
- One could possibly argue that an increased GDP as a result of expansion in export revenue can be utilised for improving the environmental quality.
- As per the environmental Kuznets curve, there is an inverted U shape relationship between the income of a country and its environmental degradation.

- This implies that as income increases, environmental quality begins to deteriorate, but improves after some time.
  - Coming to the exports of agricultural and food products, India is virtually exporting some of its depleting natural resources such as water through exports.
  - India is the leading exporter of rice in the world market.
  - Given that rice is a water-intensive crop, India is indirectly exporting water to other countries.
  - This virtual water trade will have an adverse impact on long-term sustainability and food security of the country although there has been an overall improvement in water-use efficiency.
- come down from 1.38% in 2005 to 1.07% in 2019.
  - In order to ensure long-term sustainability, strict environmental measures need to be explored, such as revisiting the possibilities of increasing the environmental tax, even though the short-run implications, especially on the trade front, may not be pleasant.
  - Similarly, water-saving policies that seek to improve the water use efficiency are also the need of the hour, in order to promote sustainable production of rice and also safeguard food security in the country.

**THE HINDU**

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### **Reproductive right**

- The way forward**
- The growing consumption in rich countries has come at a cost for developing countries such as India. Countries have begun imposing an environmental tax to address a broad spectrum of environmental issues.
  - For example, in OECD countries, the tax roughly constitutes 2% of the GDP. While the environmental tax in India is around 1%, the tax as a percentage of GDP has marginally
- According to the World Health Organization, six out of 10 of all unintended pregnancies end in an induced abortion.
  - Around 45% of all abortions are unsafe, almost all of which (97%) take place in developing countries.
  - As per a nationally representative study published in PLOS One journal in 2014, abortions account for 10% of maternal deaths in India.
  - The recent round of the National Family Health Survey 2019-2021,

shows that 3% of all pregnancies in India result in abortion. More than half (53%) of abortions in India are performed in the private sector,

- Whereas only 20% are performed in the public sector partly because public facilities often lack abortion services.
- More than a quarter of abortions (27%) are performed by the woman herself at home.
- The MTP Act, first enacted in 1971 and then amended in 2021, certainly makes 'medical termination of pregnancy' legal in India under specific conditions
- The MTP Act also only mentions 'pregnant woman', thus failing to recognise that transgender persons and others who do not identify as women can become pregnant.
- Moreover, the acceptance of abortion in Indian society is situated in the context of population control and family planning.
- But, most importantly, after more than 50 years of the MTP Act, women and transgender persons face major obstacles in accessing safe abortion care.
- First, they may not even be aware that abortion is legal or know where to obtain one safely;
- second, since the MTP Act does not recognise abortion as a choice, they need the approval of medical professionals even in the first few weeks of the pregnancy;
- third, unmarried and transgender people continue to face stigma and can be turned away from health facilities, forcing them to resort to unsafe care;
- fourth, mandatory reporting requirements under the Protection of Children from Sexual Offences Bill (POCSO), 2011 law against child sexual offences, impact privacy and hinder access of adolescents to safe abortion services;
- Fifth, many are still coerced into agreeing to a permanent or long-term contraceptive method as a prerequisite for getting abortion services; sixth, health-care providers may impose their own morality by insisting on 'husbands' or 'parental' consent for abortion.
- Even women seeking abortion care in health facilities are often mistreated and not provided medications for pain relief;
- Seventh, despite laws prohibiting sex determination, the illegal practice persists.
- The mushrooming of unregulated ultrasound clinics in India continues to facilitate the illegal practice of sex determination, resulting in unsafe abortions and female foeticide.

- There is an urgent need in our country to shift the discourse on abortions from just being a family planning and maternal health issue to one of a sexual health and reproductive rights issue.
- The situation in India shows that one law alone is insufficient and we must raise the bar on reproductive justice.
- We must improve our health systems to ensure good quality and respectful abortion care.

#### **THE HINDU**

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GES  
REPORTER

## Learning loss

- The Gross Domestic Product (GDP) of India, which is among the countries with the longest school closures during the COVID-19 pandemic, will see the highest decline in South Asia due to learning losses for the young, a new working paper published by the Asian Development Bank (ADB) has reckoned.
- Starting with a \$10.5 billion dent in 2023, the country's economy could take a nearly \$99 billion hit by 2030, translating into a 3.19% reduction in GDP from the baseline growth trends, according to the paper on 'Potential Economic Impact of COVID-19 related School Closures'.
- India may thus account for over 10% of the global GDP decline of \$943 billion estimated by the ADB on account of earning losses in 2030, with jobs for skilled labour expected to decline by 1%, and unskilled labour by 2% that year.
- "India has notable enrolment in secondary education and among students in rural areas.
- Pandemic-induced school closures have also been more extensive there.
- Learning and earning losses are significant because a notable portion of the impacted population will migrate to the unskilled labour force, the paper said. A large part of India's work force is constituted by unskilled labour 408.4 million as per the ADB paper's estimates, compared to 72.65 million skilled workers.
- "In terms of absolute change, India experiences the highest GDP decline in South Asia, at \$98.84 billion in 2030.
- In percentage terms, its GDP decreases by 0.34% in 2023, 1.36% in 2026, and 3.19% in 2030,"

## THE HINDU

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### The principle of non-retrogression

- The principle of non-retrogression, or the doctrine of progressive realisation of right
- Article 2(1) of International Covenant on Economic, Social and Cultural Rights (ICESCR) India is a signatory seeks to "achieving progressively the full realisation of the rights recognised in the Covenant by all appropriate means, including particularly the adoption of legislative measures".



- The Covenant states in its preamble that the ideal of free human beings enjoying freedom from fear and want can only be achieved if conditions are created whereby everyone may enjoy his economic, social and cultural rights, as well as his civil and political rights.
- A five judge Bench of the Supreme Court, in its September 2018 Navtej Singh Johar judgment (AIR 2018 SC 4321) offered, between pages 111 and 118, an excellent analysis of this doctrine.
- It stated that “in a progressive and an ever-improving society, there is no place for retreat”, and therefore, “the State should not take measures or steps that deliberately lead to retrogression on the enjoyment of rights either under the Constitution or otherwise”

## **THE HINDU**

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### **Measles Rubella elimination**

- The Government decided to eliminate measles and rubella from India by the year 2020 having missed the earlier set target of 2015. So, in 2017 there was an urgency to accelerate efforts.
- The basic plan was to create a very high level of vaccination-induced immunity against both diseases, by inoculating MR vaccine.
- The two arms of intervention are vaccination and surveillance. Surveillance helps identify places where either virus is still in transmission, so that vaccination can be pinpointed there to stop further spread.
- In the pre-vaccination era, while polio paralysed about 1% of all children before the age of five, measles actually killed 1% of all under-five children. During measles outbreaks, the case-fatality rate was about 10%-15%.
- Children who recovered would have lost weight as well as the steady momentum of cognitive development and scholastic performance.
- Measles affects the immune system rendering the child vulnerable to other infectious diseases, leading to high mortality over the next two to three years.
- The rubella virus is a slower transmitter and the risk of rubella is extended from childhood through adolescence into the reproductive age range. In most individuals, rubella infection
- Affected babies are born with severe birth defects such as cataracts, deafness, heart defects and

developmental delay this is 'congenital rubella syndrome' (CRS).

- Fortunately, CRS is preventable with vaccination if given prior to pregnancy
- The MR vaccine is a combined product, targeting two diseases in one shot.

## **THE HINDU**

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### **Global chip shortage**

- The lockdown has had a domino effect on global supply chains. Separately, Russia's invasion of Ukraine has strained exports of essential commodities used to make chip sets.
- Moscow supplies rare materials like palladium, and Kyiv sells rare gases to make semiconductor fab lasers.
- This combination is required to build chipsets that power a range of devices, from automobiles to smartphones.
- When the pandemic began, carmakers stopped requesting chips from suppliers due to low demand for new vehicles.
- And now, as they ramp up production to meet consumer demand, chip makers are down on supply because they have cut deals with other industries.

## **THE HINDU**

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## **Green Hydrogen**

### **The story so far:**

- At the World Economic Forum in Davos, Switzerland, a few days ago, Minister of Petroleum and Natural Gas Hardeep Singh Puri said India will emerge as the leader of green hydrogen by taking advantage of the current energy crisis across the globe.

### **What is green hydrogen?**

- A colourless, odourless, tasteless, non-toxic and highly combustible gaseous substance, hydrogen is the lightest, simplest and most abundant member of the family of chemical elements in the universe. But a colour green prefixed to it makes hydrogen the "fuel of the future".
- The 'green' depends on how the electricity is generated to obtain the hydrogen, which does not emit greenhouse gas when burned.
- Green hydrogen is produced through electrolysis using renewable sources of energy such as solar, wind or hydel power.
- Hydrogen can be 'grey' and 'blue' too. Grey hydrogen is generated through fossil fuels such as coal and gas and currently accounts for 95% of the total production in South Asia.

- Blue hydrogen, too, is produced using electricity generated by burning fossil fuels but with technologies to prevent the carbon released in the process from entering the atmosphere.

### **Why is India pursuing green hydrogen?**

- Under the Paris Agreement (a legally binding international treaty on climate change with the goal of limiting global warming to below 2°C compared to pre-industrial levels) of 2015, India is committed to reducing its greenhouse gas emissions by 33-35% from the 2005 levels.
- At the 2021 Conference of Parties in Glasgow, India reiterated its commitment to move from a fossil and import-dependent economy to a net-zero economy by 2070.
- India's average annual energy import bill is more than \$100 billion and the increased consumption of fossil fuel has made the country a high carbon dioxide (CO<sub>2</sub>) emitter, accounting for nearly 7% of the global CO<sub>2</sub> burden.
- In order to become energy independent by 2047, the government stressed the need to introduce green hydrogen as an alternative fuel that can make India

the global hub and a major exporter of hydrogen.

- The National Hydrogen Mission was launched on August 15, 2021, with a view to cutting down carbon emissions and increasing the use of renewable sources of energy.

### **How much green hydrogen is India producing?**

- India has just begun to generate green hydrogen with the objective of raising non-fossil energy capacity to 500 gigawatts by 2030.

### **What are the advantages of hydrogen as a fuel?**

- The intermittent nature of renewable energy, especially wind, leads to grid instability. Green hydrogen can be stored for long periods of time. The stored hydrogen can be used to produce electricity using fuel cells.
- In a fuel cell, a device that converts the energy of a chemical into electricity, hydrogen gas reacts with oxygen to produce electricity and water vapour. Hydrogen, thus, can act as an energy storage device and contribute to grid stability.
- Experts say the oxygen, produced as a by-product (8 kg of oxygen is produced per 1 kg of hydrogen), can also be monetised by using it for

industrial and medical applications or for enriching the environment.

- The possibilities of hydrogen have made many countries pledge investments with Portugal having unveiled a national hydrogen strategy worth \$7.7 billion in May.

**THE HINDU**

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GES  
REPORTER

## Sela macaque

- A new species of old world monkey recorded from Arunachal Pradesh has been named after a strategic mountain pass at 13,700 ft above sea level.
- Sela macaque (*Macaca selai*), the new-to-science primate was identified and analysed by a team of experts from the Zoological Survey of India (ZSI) and the University of Calcutta.
- The phylogenetic analysis revealed that the Sela macaque was geographically separated from the Arunachal macaque (*Macaca munzala*) of Tawang district by Sela.
- This mountain pass acted as a barrier by restricting the migration of individuals of these two species for approximately two million years, the study said.
- Sela is situated between Dirang and Tawang towns in western Arunachal Pradesh.
- The study says the Sela macaque has a tail longer than the Tibetan macaque, Assamese macaque, Arunachal macaque and the white-cheeked macaque but shorter than the bonnet macaque and toque macaque.
- Sela macaque belongs to the *sinica* species-group of *Macaca*, but it

differs from all other members of this group through attributes such as brown collar hair and muzzle, and the absence of chin whiskers.

## Sela pass

- The Sela Pass is a high-altitude mountain pass located on the border between the Tawang and West Kameng districts in the Indian state of Arunachal Pradesh.
- It has an elevation of 4170 m (13,700 ft) and connects the Indian Buddhist town of Tawang to Dirang and Guwahati.
- The pass carries the National Highway 13 (previously NH 229), connecting Tawang with the rest of India.
- The pass supports scarce amounts of vegetation and is usually snow-covered to some extent throughout the year.
- Sela Lake, near the summit of the pass, is one of approximately 101 lakes in the area that are sacred in Tibetan Buddhism.

## THE HINDU

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### AKRUTI

- The Nuclear Power Corporation of India Limited, which is assisting unemployed youth living in 16 village panchayats near the Tarapur Atomic

Power Station (TAPS) through its Advanced Knowledge and Rural Technology Implementation (AKRUTI) programme, is all set to launch a similar initiative in the villages surrounding Kudankulam Nuclear Power Project (KKNPP).

- The Bhabha Atomic Research Centre, the country's premier multidisciplinary research and development centre under the Department of Atomic Energy, besides identifying newer nuclear power generation techniques, is devising new, user-friendly and cost-effective technologies in the fields of nuclear science, radioisotopes, industry, health and agriculture.
- These technologies are being taught to the younger generation and the unemployed youth to make them entrepreneurs.
- One of the AKRUTI's interesting technology transfers is the cost-effective foldable dryer, which can be used for drying fruits, vegetables and fish.

## THE HINDU

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### Sex as work

- A long-standing demand of sex workers that their work be decriminalised has been partially fulfilled with the Supreme Court

passing an order that adult sex workers are entitled to dignity and equal protection under law.

- Directing the police to respect the rights of consenting sex workers, the Court observed that "... notwithstanding the profession, every individual ... has a right to a dignified life under Article 21 of the Constitution".
- It reiterated what the Court had ruled in Budhadev Karmaskar (2011), that sex workers are also entitled to a "life of dignity".
- With the Trafficking of Persons (Prevention, Protection and Rehabilitation) Bill yet to see the light of day, the Court invoked powers under Article 142 to issue guidelines till the legislation is in force.
- In 2011, it had set up a panel to look at prevention of trafficking; rehabilitation; and conditions conducive for sex workers who wish to continue work.
- As the Court awaits the Government's response to the panel's recommendations that adult sex workers should not be "arrested or penalised or harassed or victimised,"
- Direct the police to treat "all sex workers with dignity and should not abuse them,. Verbally and physically,

subject them to violence or coerce them into any sexual activity”

- It has asked State governments to do a survey of protective homes under the Immoral Traffic (Prevention) Act, the legislation governing sex work in India, to review the cases of “adult women” detained there and process their release in a time-bound manner.
- The ITP Act penalises acts such as running a brothel, soliciting in a public place, living off the earnings of a sex worker and living with or habitually being in the company of one.
- The Court’s general observations should help sensitise the police, media and society toward sex workers, who have generally been invisible and voiceless.
- The ball is in the Government’s court to draw up appropriate legislation to free consenting sex workers from stigma, and grant them workers’ right.

## **THE HINDU**

### **Feminine hygiene**

- In the past decade, significant progress has been made in India by government and non-governmental actors with regard to menstrual

health and hygiene management (MHHM).

- Increased awareness about MHHM, enhanced access to female friendly/ gender appropriate sanitation facilities and availability of menstrual products, in particular sanitary pads, are some of the visible outcomes of this progress.
- However, certain groups have been overlooked thus far, including girls and women with disability.
- According to Census 2011, nearly 27 million persons (or 2.2% of the Indian population) are disabled.
- The Rights of Persons with Disabilities Act, 2016 specifies that a person with disabilities has “long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders [her]/his full and effective participation in society equally with others”
- The 2016 Act, while stipulating the rights and entitlements of persons with disability, recognised that women and children are particularly vulnerable, and that certain rights, such as reproductive rights, may be even more neglected or disregarded as compared to others.
- Despite the intent of the Act and its provisions, the realisation of rights and entitlements of persons with

disability is poor, especially for those from socially and economically vulnerable groups.

- Deeply embedded prejudices and misconceptions about the reproductive anatomy and abilities of persons with disability result in their being considered asexual, unsuitable for marriage, and incapable of having and raising children
- The United Nations Population Fund and Water Aid India are working together to understand the key challenges and constraints faced by persons with disability with regard to menstrual health and hygiene
- The second is appropriate and safe menstrual products and hygiene promotion.
- The third is responsive and inclusive water, sanitation and hygiene (WASH) facilities, including disposal solutions in different settings
- The fourth is caregivers, both from within the family and institutions are vital for disability focused interventions and must be included as both participants and partners.

## **THE HINDU**

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### **Booker prize**

- Indian author Geetanjali Shree has won the prestigious International

Booker Prize for her Hindi novel Ret Samadhi, translated into English as Tomb of Sand by Daisy Rockwell.

- The Mainpuri-born, 65- year-old Ms. Shree follows in the footsteps of Indian origin author Salman Rushdie, Kiran Desai, Arundhati Roy and Arvind Adiga to win the international honour.

## **THE HINDU**

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## H5N1

- There has been an unprecedented spread of the H5N1 strain of avian influenza in wild birds.
- The virus seems to be spreading in wild birds more easily than ever before.
- The infected wild birds then spread the virus around the world, posing a significant risk to vulnerable species, which makes the virus hard to contain.

## H5N1

- Influenza A virus subtype H5N1 (A/H5N1) is a subtype of the influenza A virus which can cause illness in humans and many other animal species.
- A bird-adapted strain of H5N1, called HPAI A (H5N1) for highly pathogenic avian influenza virus of type A of subtype H5N1, is the highly pathogenic causative agent of H5N1 flu, commonly known as avian influenza ("bird An inflammation of the bones in the spine is called spondylitis. One severe, arthritic form of spondylitis is called ankylosing spondylitis (AS).
- The term 'ankylosing' refers to new bone formation leading to the cementing together of a set of

adjacent vertebrae, usually in the lower back.

- Spondylitis is different from spondylosis, which is the wearing away of the vertebral column flu").
- It is enzootic (maintained in the population) in many bird populations, especially in Southeast Asia. One strain of HPAI A (H5N1) is spreading globally after first appearing in Asia.
- It is epizootic (an epidemic in nonhumans) and panzootic (affecting animals of many species, especially over a wide area), killing tens of millions of birds and spurring the culling of hundreds of millions of others to stem its spread. Many references to "bird flu" and H5N1 in the popular media refer to this strain.

## THE HINDU

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### Phytoplankton and global warming

- An international team of scientists have found a remarkable type of fossilisation that has remained almost entirely overlooked until now.
- The fossils are microscopic imprints, or 'ghosts,' of single-celled plankton, called coccolithophores, that lived in the seas millions of years ago, and their discovery is changing our

understanding of how plankton in the oceans are affected by climate change.

- Declines in the abundance of coccoliths fossils have been documented from multiple past global warming events, suggesting that these plankton were severely affected by climate change and ocean acidification.
- But a study found (Science) new global records of abundant ghost fossils from three Jurassic and Cretaceous warming events (94, 120 and 183 million years ago), suggesting that coccolithophores were more resilient to past climate change than was previously thought.

#### **THE HINDU**

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### **Ankylosing spondylitis (AS)**

- An inflammation of the bones in the spine is called spondylitis. One severe, arthritic form of spondylitis is called ankylosing spondylitis (AS).
- The term 'ankylosing' refers to new bone formation leading to the cementing together of a set of adjacent vertebrae, usually in the lower back.
- Spondylitis is different from spondylosis, which is the wearing away of the vertebral column.

- An important immune system component, the human leukocyte antigen (HLA) complex, helps distinguish self from non-self-normal proteins that are part of your body versus proteins that are from invasive organisms, or even damaged or deformed versions of your own normal proteins.
- The HLA complex achieves this by showing a particularly 'foreign'-looking piece of a bacterial molecule (the antigen) to other immune system components that will hunt down anything resembling this piece.
- Some variants of the HLA gene (e.g., HLA-B27) are predisposed to AS and other conditions that cause chronic inflammation of the joints of the spine.

#### **THE HINDU**

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### **Bacteria in Antarctica**

- A bacteria have been discovered in Antarctica with genes that give them natural antibiotic and antimicrobial resistance and have the potential to spread out of the Polar Regions, according to scientists in Chile.
- Scientists from the University of Chile collected several samples from the Antarctic Peninsula from 2017 to 2019.

- They found that the Pseudomonas bacteria, one of the predominant bacteria groups in the Antarctic Peninsula, are not pathogenic but can be a source of 'resistance genes', which are not stopped by common disinfectants such as copper, chlorine or quaternary ammonium.

**THE HINDU**

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### Nanorobots

- Once the shooting pain has been diagnosed as being due to a bacterial infection within the tooth, the dentist drills a hole, scoops out the infected pulp, disinfects the tooth and fills the space with an antibacterial sealant like bleach or hydrogen peroxide
- A common cause of failure is that the underlying bacteria, usually Enterococcus faecalis, hasn't been completely eliminated paving the way for reinfections that can necessitate extracting the tooth.
- A Bengaluru based start-up incubated at the Indian Institute of Science, aspires to go one up by employing nanotechnology.
- By deploying an army of so called 'nanobots', or tiny 'robots' that are helical crawlers made of silicon dioxide coated with iron, the aim is

to have the bots move as close to where the bacteria abound.

- The bots' movement can be controlled using a device that generates a low intensity magnetic field.
- In their tests, Theranutilus scientists injected these nanobots into extracted tooth samples and tracked their movement via a microscope.

**THE HINDU**

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## Masked Aadhaar

- Two days after issuing an advisory cautioning people against sharing a photocopy of their Aadhaar card, the Union government on Sunday withdrew the notification, claiming it could be “misinterpreted. On multiple occasions, the authority said publicly that without biometric information, Aadhaar details could not be used to impersonate a person.
- However, it was said that since the Aadhaar card is a document with details of personal information, it is akin to giving out a mobile phone number, bank account number or PAN and ought to be “ordinarily protected” to ensure a person’s privacy.

THE HINDU

### What is a masked Aadhaar?

An Aadhaar number consists of 12 digits. Masking an Aadhaar number means replacing the first eight digits with some characters like “xxxx-xxxx” while only the last four digits of the original number are visible

#### HOW TO DOWNLOAD A MASKED AADHAAR?

Downloading an electronic version of masked Aadhaar card is a five-step process

1. Go to the link <https://aadhaar.uidai.gov.in/genricDownloadAadhaar>

2. Type your Aadhaar card number and enter the captcha



3. There will be an option “Do you want a masked Aadhaar”. Select it

4. Enter the OTP received on your mobile phone

5. Verify and download your masked Aadhaar card

THE HINDU

## BRICS

- BRICS has become an important platform for win-win cooperation among China, India, Russia, Brazil and South Africa, and a significant force for the evolution of international order, the improvement of global governance and the promotion of common development.
- Since China took over the BRICS chairmanship at the beginning of this year, we have worked together with BRICS partners to press ahead with cooperation in political security, economy and finance, people-to-people exchanges, public health and other realms.

### Upholding universal security

- BRICS countries should be builders of universal security.
- Coldwar mentality and bloc confrontation pose grave threats to world peace and security. Seeking one’s own security at the expense of others’ will only create new tensions and risks.
- BRICS countries need to strengthen political mutual trust and security cooperation, maintain communication and coordination on major international and regional issues, accommodate each other’s core interests and major concerns,

respect each other's sovereignty, security and development interests, oppose hegemonism and power politics, and work together to build a global community of security for all

- BRICS countries should be contributors of common development. The COVID-19 pandemic threatens to derail the world economy
- Facing the rising tide of de-globalisation and the increase of unilateral sanctions and technology barriers, BRICS countries should enhance mutually-beneficial cooperation in supply chains, energy, food and financial resilience, take solid steps to implement the Global Development Initiative, foster an open world economy and create a favourable environment for common development.

### **On health**

- BRICS countries should be pioneers of cooperation in COVID-19 pandemic management.
- India's vision of 'One Earth, One Health' also contributes to multilateral cooperation on public health.
- BRICS countries should fully leverage their respective strengths, and jointly promote the development of global health governance in a

direction in favour of developing countries.

### **A governance philosophy**

- BRICS countries should be leaders of global governance. Global challenges are emerging one after another.
- Only by coordinating global actions can we properly cope with them. "Small circles" cannot solve the "big challenges" facing the whole world.
- BRICS countries should firmly safeguard the international system, with the United Nations at its core and the international order underpinned by international law, and ensure that international affairs have participation by all, international rules are formulated by all, and development outcomes are shared by all.
- We should explore the 'BRICS plus' cooperation at more levels, in more areas and in a wider scope.
- China proposes to launch the BRICS expansion process and discuss standards and procedures for expansion in order to build consensus step-by-step.

### **THE HINDU**

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## **Reservation on public employment**

- The jurisprudence of reservation relies on the symbiotic coexistence of constitutionally guaranteed equality of opportunity in public employment under Article 16 (1) of the Constitution of India and classifications thereunder various clauses of the same article, especially Article 16(4) and Article 16 (4 A), which are in the nature of facilitating provisions, vesting a discretion on the government to consider providing reservations for the socially and educationally backward sections of the society and to provide reservation in promotion to Scheduled Castes and Scheduled Tribes, respectively.

### **Reservation not a fundamental Right**

- It is a settled law, time and again reiterated by the Supreme Court, that there is no fundamental right to reservation or promotion under Article 16(4) or Article 16(4 A) of the Constitution, rather they are enabling provisions for providing reservation, if the circumstances so warrant (Mukesh Kumar and Another vs State of Uttarakhand & Ors. 2020).

- However, these pronouncements no way understate the constitutional directive under Article 46 that mandates that the state shall promote with special care the educational and economic interests of the weaker sections of the people and in particular Scheduled Castes and Scheduled Tribe.
- The Constitution (Seventy-seventh Amendment) Act, 1995 In Indra Sawhney Case, the Supreme Court had held that Article 16(4) of the Constitution of India does not authorise reservation in the matter of promotions.
- However, the judgment was not to affect the promotions already made and hence only prospective in operation, it was ruled. By the Constitution (Seventy-seventh Amendment) Act, 1995, which, Article 16(4-A), was inserted to provide that “nothing in this article shall prevent the State from making any provision for reservation in matters of promotion to any class or classes of posts in the services under the State in favour of the Scheduled Castes and the Scheduled Tribes which, in the opinion of the State, are not adequately represented in the services under the State”
- The Constitution Bench Judgment in M. Nagaraj (2006)

- A five-judge bench of Supreme Court declared the 1995 amendment as not vocative of basic structure of the Constitution but laid down creating conditions which included the collection of “quantifiable data showing backwardness of the class and inadequacy of representation of that class in public employment” . .
- The bench held that the creamy layer among Scheduled castes and tribes is to be excluded from reservation.

### **Jarnail Singh vs Lachhmi Narain Gupta (2018)**

- The constitution bench invalidated the requirement to collect quantifiable data in relation to Scheduled Castes and Scheduled Tribes but upheld the principle of applicability of creamy lawyer in relation to Scheduled Castes and Scheduled Tribes.
  - The Constitution (103rd Amendment) Act, 2019
  - The 10% reservation for Economically Weaker Sections (EWS), other Scheduled Castes, Scheduled Tribes and backward classes for government jobs and admission in educational institutions is currently under challenge before the Supreme Court which has referred the same to a constitution bench.
- The adjudication awaited in this regard may also turn to be a critical milestone in the jurisprudence of reservation as traditional understanding of backwardness is broadened to specifically include economic backwardness without social backwardness as is traditionally seen.
  - Dr. Jaishri Laxmanrao Patil vs Chief Minister (2021)
  - Despite the Indra Sawhney ruling, there have been attempts on the part of many States to breach the rule by way of expanding the reservation coverage and the Maharashtra Socially and Educationally Backward Classes Act 2018, (Maratha reservation law) came under challenge before the Supreme Court which referred the same to a bench of five judges and one question was whether the 1992 judgment needs a relook.
  - Interestingly, the Supreme Court not only affirmed the Indra Sawhney decision, but also struck down Section 4(1)(a) and Section 4(1)(b) of the Act which provided 12% reservation for Marathas in educational institutions and 13% reservation in public employment respectively, citing the breach of ceiling.

- “The 2018 Act as amended in 2019 granting reservation for Maratha community does not make out any exceptional circumstance to exceed the ceiling limit of 50% reservation,”, declared the apex Court.
- During the First World War, the Ottomans, aided by Azeris, attacked the south Caucasus, especially targeting ethnic Armenians.
- As the Ottomans retreated at the end of the World War, Azerbaijan and Armenia descended into a full-blown war in 1920.
- The Azeri-Armenian war of 1991

## **THE HINDU**

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### **Nagorno karabakh**

#### **How did the conflict over Nagorno-Karabakh begin?**

- Nagorno-Karabakh is a landlocked, mountainous and forested region, falling within the boundaries of Azerbaijan.
- Nagorno-Karabakh, called Artsakh in Armenian, hosts a predominantly ethnic Armenian population with an Azeri minority.
- It is located in the South Caucasus region and is roughly made up of modern-day Armenia, Azerbaijan, and Georgia.
- Georgia. Nagorno-Karabakh, which was once a part of the Armenian kingdom, has been ruled by several empires over the centuries the Ottomans, the Persians, and the Russians. Armenia, Azerbaijan and Georgia later became separate Republics, with the Azeris incorporating Nagorno-Karabakh into their Republic.
- Despite the 2020 ceasefire, clashes have not stopped.
- In November last year, seven Azerbaijani and six Armenian soldiers were killed in border clashes.
- With the efforts of the Minsk Group remaining largely unsuccessful, Baku saw an opportunity to introduce its own peace proposal, which calls for the mutual recognition of each State’s territorial integrity, meaning the recognition of Nagorno-Karabakh within Azerbaijani territory.
- The European Union, meanwhile, has emerged as a potential peace broke
- Soon, the Bolsheviks took over south Caucasus to expand Soviet influence and Azerbaijan, Armenia, and Georgia became Soviet Republics.

#### **Who is organising the current peace talks and where do they stand?**



- The Soviets officially placed Nagorno-Karabakh as an autonomous Oblast (administrative region) in Azerbaijan's territory, despite the chiefly Armenian population.
- As Soviet power began to wane in the 1980s, the ethnic Armenian population of Nagorno-Karabakh expressed a desire to be reunited with their roots and become a part of Armenia, organising a vote for the same in 1988.
- By 1993, Armenia had taken control of most of Nagorno-Karabakh.
- The war ended in 1994 when both countries entered into a ceasefire brokered by Russia but the borders of Armenia and Azerbaijan were not demarcated
- The Minsk Group, created by the Organisation for Security and Cooperation in Europe (OSCE) in early 1990, was co-chaired by Russia, the United States, and France.
- The Minsk Group's proposals were continuously rejected by both Yerevan and Baku.
- The role of the Minsk Group declined during the 2020 war between the two countries, as other negotiating groups entered the scene.
- In 2016, a clash started between Azerbaijan and Armenia which lasted for four days.
- A ceasefire signed in Moscow put an end to the war but the Nagorno-Karabakh issue was far from resolved.
- Fresh clashes erupted on the Armenia-Azerbaijan border in September of 2020, which turned into a fierce six-week war in which more than 2,000 people died.

### **Who is organising the current peace talks and where do they stand?**

- Despite the 2020 ceasefire, clashes have not stopped.
- In November last year, seven Azerbaijani and six Armenian soldiers were killed in border clashes.
- With the efforts of the Minsk Group remaining largely unsuccessful, Baku saw an opportunity to introduce its own peace proposal, which calls for the mutual recognition of each State's territorial integrity, meaning the recognition of Nagorno-Karabakh within Azerbaijani territory.
- The European Union, meanwhile, has emerged as a potential peace broker.

### **THE HINDU**

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## 5G

- Radio electronics refers to a broad range of technologies that can transmit, receive and process wireless signals.
- While these technologies can utilise electromagnetic spectrum that goes all the way up to 300GHz, the lower frequencies of this spectrum are particularly attractive.
- Lower frequency signals can travel longer distances and penetrate obstacles with lesser attenuation.
- Electronic components (amplifiers, transmitters, receivers) operating at lower frequencies are also easier to design and manufacture.
- New spectrum for 3GHz With the increasing demand for mobile services, the currently allocated spectrum is proving inadequate.
- At the simplest level, 5G represents the allocation of new spectrum to increase capacity. Since most of the spectrum at lower frequencies is already being utilised much of this new spectrum is being allocated at higher frequencies.
- The first deployments in India will be around 3GHz, but will expand to 25 GHz and beyond.
- As 5G services evolve to occupy higher frequencies, it will significantly increase the bandwidth available for mobile services.
- However, at these frequencies the design of the transmitting and receiving equipment becomes more complex.
- An interesting fact related to the physics of signal transmission is that at higher frequencies it becomes easier to direct a signal in specific direction.
- So, signals transmitted from a cell tower can be more precisely directed at a specific user (rather than spreading out in various directions which is just a waste of energy).
- Intuitively, this enhanced directivity results in less interference between signals meant for different users which directly translates to increased capacity.
- Thus, while operating at higher frequencies has some fundamental challenges, it offers some unique opportunities as well.
- Existing wireless communication infrastructure is primarily designed around the needs of mobile phones.
- However, several emerging applications in factory automation, gaming and remote healthcare have more stringent latency requirements. Self-driving cars is an illustrative example
- Low delays between transmission and reception of messages are

extremely critical when these cars have to co-operate with each other to avoid accidents.

- There is also a lot of research around cost and energy efficient electronic devices that can transmit and receive high frequency signals.
- This involves delving into the fundamental physics of semiconductor technologies and is expected to lay the foundation for the growth of wireless technology into higher frequency bands.

#### **THE HINDU**

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## Pacific islands and china

- Ten Pacific island nations rebuffed China's push for a wide-ranging regional security pact on Monday, amid worries the proposal was designed to pull them into Beijing's orbit.
- Ack for Beijing. China is offering to radically ramp up its activities in the South Pacific, directly challenging the influence of the United States and its allies in the strategically vital region.
- The proposed pact would see Beijing train Pacific island police, become involved in cybersecurity, expand political ties, conduct sensitive marine mapping and gain greater access to natural resources on land and in the water.
- As an enticement, Beijing is offering millions of dollars in financial aid, the prospect of a potentially lucrative China-Pacific islands free trade agreement and access to China's vast market.
- In a recent letter to fellow leaders, David Panuelo, the President of the Federated States of Micronesia, warned the offer was "disingenuous" and would "ensure Chinese influence in government"

and "economic control" of key industries.

## THE HINDU

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### SC on foreign medical students

- The Supreme Court has noted that "overambitious parents" and "exploitative founders of infrastructure deficient" colleges have led to the decline and commercialisation of medical education and upheld the National Medical Commission's regulations that prescribe certain strictures before foreign medical graduates can practise in India.
- The regulations had in the recent past been a point of debate with relation to Indian students who were forced to return due to the Ukraine crisis.
- A Bench of Justices Hemant Gupta and V. Ramasubramanian, in a judgment in early May, upheld the regulatory validity of the National Medical Commission (Foreign Medical Graduate Licentiate) Regulations, 2021 and the National Medical Commission (Compulsory Rotating Medical Internship) Regulations, 2021.
- The first one requires the foreign medical graduates (FMGs) to

undergo a medical course for a minimum of 54 months and an internship for a minimum duration of 12 months in the same foreign medical institution; to register with a professional regulatory body competent to grant licence in the same foreign country and further undergo a supervised 12- month internship in India after applying to the National Medical Commission.

- The second lists rigorous conditions for internship in India for the FMGs.

## **THE HINDU**

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### **After effects of anti-corruptions laws**

- Strict anti-corruption laws are seen as the panacea to many of society's problems. But like many other laws that are created with good intentions, there can be unintended consequences to anti-corruption laws as well.
- These consequences are initially unforeseen by the supporters of these laws.
- "Bribe-switching" by American researchers Jamie Bologna Pavlik and Desiree Desierto looks into the unintended consequences of the strict implementation of the Foreign Corrupt Practices Act (FCPA).

- It should be noted that the FCPA was enacted to prohibit firms and people in the United States from bribing public officials in foreign countries
- Many assume that strict anti-corruption laws like the FCPA when enforced properly by government officials would lead to a fall in corruption and an improvement in the economy.
- The reason why there was no real decrease in.
- The level of corruption among foreign officials after the enactment of the FCPA was because public officials did not only depend on formal markets to earn bribes but also on illegal markets.
- The authors note that while there was no increase in a country's GDP per capita after the FCPA moved against attempts to bribe their public officials, there was a significant increase in the size of their black economies.

## **THE HINDU**

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### **'Move away from coal'**

#### **Why is the 'move away from coal' so important?**

- The threat of global warming looms over the planet, promising to bring

about unprecedented natural calamities.

- An effective way to keep the danger at bay is to cut the use of fossil fuels coal, natural gas and oil. About 80% of the world's energy requirements are met by these three fuels.
- They have likely brought on the climate crisis we now face, as they trigger the emission of carbon dioxide.
- However, the worst culprit of them all is coal, which emits nearly twice as much carbon dioxide as natural gas and about 60% more than oil, on a kilogram-to-kilogram comparison.
- The consequence of these chemical reactions gains great significance because, the power sector in India accounts for 49% of total carbon dioxide emissions, compared with the global average of 41%.

#### **What is the extent of India's dependence on coal?**

- As of February 2022, the installed capacity for coal-based power generation across the country was 2.04 lakh megawatt (MW). This accounts for about 51.5% of power from all sources.
- This compares with about 25,000 MW of capacity based on natural gas as fuel, or a mere 6.3% of all installed capacity.

- Renewable power accounted for 1.06 lakh MW or 27%. Coal-based power stations are retired periodically which happens all the time.
- But is not fast enough nor are new additions being halted. And with good reason – coal is still inexpensive compared with other sources of energy.
- For FY20, for example, India added 6,765 MW power capacity based on coal as fuel. But only 2,335 MW was retired.
- According to the IEA's Coal Report 2021, India's coal consumption will increase at an average annual rate of 3.9% to 1.18 billion tonnes in 2024. So, it is not easy to shift away from coal overnight.

#### **How has war made India's move away from coal difficult?**

- Natural gas has been dubbed as the transition fuel in India's plans to move away from coal.
- The international cost of natural gas has zoomed in the recent past from a level that was considered already too high to be financially viable
- While renewable energy sources are cheaper than coal, their ability to generate power consistently is subject to the whims of nature the wind and the Sun.

- Coal can give you power on demand. Storage technologies are still not mature enough to help renewable energy sources become reliable generators of power.
- As per a letter by the Ministry, Coal India, the country's largest supplier of the dry fuel is set to import coal for the first time since 2015.
- The aim of the exercise is to avoid a repeat of the power outage crisis that India faced in April the worst in more than six years.
- Following the issue of the letter dated May 28 to all state utilities, officials at the States and the Centre, including to the Coal Secretary, the central government has asked States to place import tenders on hold with a view to cut procurement costs using government-to-government channels.
- An internal power Ministry presentation is said to point to a 42.5 million tonne (MT) coal shortage in the quarter ending September on the back of high demand for power supply.
- The shortage is 15% higher than earlier anticipated.
- Domestic supply of coal is expected to be 154.7 MT, compared with the projected requirement of 197.3 MT.

## **Aim of Russia**

### **What does Russia want?**

- Russian Foreign Minister Sergei Lavrov said on Monday that the "liberation" of Donbas was Russia's "unconditional priority".
- Donbas, the traditional industrial region that has historical ties with Russia, encompasses Ukraine's Luhansk and Donetsk oblasts (now, self-declared Luhansk and Donetsk People's Republics, which were recognised by Mr. Putin as sovereign states before ordering the invasion).
- Russia has already taken almost all of Luhansk.
- Severodonetsk (it was the capital of the Ukrainian-controlled parts of Luhansk), is the only major city where there is still Ukrainian presence in the oblast (province) and all reports indicate that the city would be in complete Russian control within days, if it hasn't already fallen.
- The Russian blockade of Ukraine's sea ports is threatening to send food prices soaring which could impact global food supplies and food security.
- This has prompted several European countries to reach out to Mr. Putin, seeking a solution.

- Moreover, countries outside the Western alliances have not joined the sanctions, which means Russia is not as isolated internationally as the West claims it is.

## **THE HINDU**

### **World No Tobacco day**

- The second Global Adult Tobacco Survey estimated that 28.6% of all adults in India used tobacco in 2016-2017, second only to China.
- The survey said 42.4% of men and 14.2% of women used tobacco both the smokeless form, i.e. chewing tobacco, and smoked form, i.e. cigarettes and 'bidis'.
- In 1987, the World Health Organization (WHO) marked 'World No Tobacco Day' to bring attention to the ill-effects of tobacco.
- 'Poisoning our planet' is the theme for May 31 this year, in an effort to highlight the ill-effects of tobacco on the environment.

#### **Harm to health and environment**

- In 2021, smoking killed about 8 million people. But tobacco is not just a bane on human health.
- According to the WHO, 600 million trees are chopped down annually to make cigarettes, 84 million tonnes of

CO2 emissions are released into the atmosphere, and 22 billion litres of water are used to make cigarettes.

- In addition to the environmental costs of production, cigarette butts, packaging, plastic pouches of smokeless tobacco, and electronics and batteries associated with e - cigarettes pollute our environment.
- India, the world's second largest producer of tobacco, produces about 800 million kg annually.
- Most efforts to counter the tobacco epidemic have been directed at creating awareness about the ill-effects of tobacco
- About 6 million farmers and 20 million farm labourers work in tobacco farming across 15 States (Central Tobacco Research Institute).
- Although farming of tobacco only contributes to 1% of GDP as per one study, the direct health expenditure on treating tobacco-related diseases alone accounts for 5.3% of total health spending in India in a year (WHO).
- Despite this, farming of tobacco cannot be stopped without serious economic consequences and/or social disruption.
- In 2016, one of the largest cigarette companies pledged to begin transitioning its customers away



from tobacco to smoke-free products.

- By 2019, it reported it was spending 98% of its research and development budget to back up this goal.
- Educating potential consumers to not consume tobacco, supporting consumers in their journey to quit, and incentivising industry to help consumers and the planet will protect not just our lungs, but also the air we breathe.

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