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# APRIL

# 20.04.2021

# CURRENT AFFAIRS

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# THE HINDU

## GS 2 : Polity, Governance, International Relations

### 1. Tripura begins shifting of Mizoram Bru refugees

**Context:**

Shifting of **Mizoram Bru refugees for permanent settlement** at various places in Tripura has begun.

**Details:**

- The process of settlement of some 35,000 Brus is taking place to respect a **quadripartite accord** signed in New Delhi in January 2020.
- The Tripura government selected 16 places in four districts for the settlement. The government also formed four committees to oversee arrangements.
- The refugees, who have been residing in makeshift camps in Kanchanpur in north Tripura since 1997, constantly refused to return home, citing threats to life and repression. They fled Mizoram amid ethnic tension and Mizo hardline groups always opposed their repatriation attempts.

**Bru-Reang Refugee Crisis:**

- Around **5,000 families** consisting of around **30,000 Bru-Reang tribals were forced to flee Mizoram** and seek shelter in Tripura following ethnic tension.
- These people were housed in **temporary camps in North Tripura**.

**Background:**

- In 1995, following a clash between Mizos and Brus, the Young Mizo Association and Mizo Students' Association demanded that Brus be removed from the state's electoral rolls, contending that the tribe was not indigenous to Mizoram.
- This led to an armed movement led by the militant outfit Bru National Liberation Front (BNLF), and a political one by the Bru National Union (BNU).
- Many Bru villages were burnt down and scores allegedly raped and killed, which led to the displacement of 40,000 Bru people.
- A large number of Bru families fled to North Tripura.

- The first phase of repatriation started in November 2010, when 1,622 Bru families with 8,573 members were resettled in Mizoram.
- The process was stalled in 2011, 2012 and 2015 amid protests by Mizo NGOs.
- Brus settled in Tripura also expressed fears for their security in Mizoram.

## Details:

- Due to ethnic tensions in Mizoram, around 34,000 people were forced to live in sub-human conditions in tents in Tripura.
- No solution could be reached all these years. In 2018, an agreement was signed and a package was sanctioned, but many people did not want to go back to Mizoram.
- Only 328 families moved back.
- Due to the initiative by Prime Minister, negotiations were started afresh. The displaced people will now be settled in Tripura permanently.
- The Ministry of Home Affairs brought the stakeholders to the talks in 2015, and a financial package of Rs. 435 crore was arrived at.
- The package covers 32,876 members of 5,407 Bru families. It included a one-time assistance of Rs. 4 lakh in a fixed deposit within a month of repatriation, monthly assistance of Rs. 5,000 through direct benefit transfer, free rations for two years, and finally, Rs. 1.5 lakh in three instalments for building houses.

## 2. The ordinance route is bad, repromulgation worse

### Context:

The **central government has repromulgated the ordinance that establishes a commission for air quality management in the National Capital Region**, called the Commission for Air Quality Management in National Capital Region and Adjoining Areas Ordinance, 2020.

- This has **raised questions about the practice of issuing ordinances** to make law, and that of **re-issuing ordinances without getting them ratified by Parliament**.

### Ordinance:

- The Constitution permits the central and state governments to make laws when Parliament (or the State Legislature) is not in session.
- As **lawmaking is a legislative function**, this power is provided for urgent requirements, and the law thus made has an automatic expiry date.

- The Constitution states that the **ordinance will lapse at the end of six weeks from the time Parliament (or the State Legislature) next meets**.

**Details:**

- While an ordinance was **originally conceived as an emergency provision**, it was used fairly regularly. State governments also used this provision very often.
  - In the 1950s, central ordinances were issued at an average of 7.1 per year. The last couple of years has seen a spike, 16 in 2019, 15 in 2020, and four so far in 2021.
- The issue was brought up in the Supreme Court through a writ petition by D.C. Wadhwa.
- In 1986, **a five-judge Constitution Bench** of the **Supreme Court ruled that repromulgation of ordinances was contrary to the constitutional scheme**.
  - It said that it would be a colourable exercise of power for the Government to ignore the Legislature and to repromulgate the Ordinance.
  - Such a scheme would be repugnant to the constitutional scheme as it would enable the Executive to transgress its constitutional limitation in the matter of lawmaking and to covertly and indirectly take on the law-making function of the Legislature.
  - However, the judgment did not stop the practice.
- In 2017, **a seven-judge Constitution Bench declared this practice to be unconstitutional.**
  - Even this judgment has been ignored.

**Issues:**

- Governments, both at the Centre and States, are violating this principle.

Central Government:

- The Indian Medical Council Amendment Ordinance was issued in September 2018 and reissued in January 2019.
- In the case of the ordinance on Commission for Air Quality Management, while the ordinance of October 2020 was laid in Parliament on the first day of the recent Budget Session, a Bill to replace it was not introduced. Now, the ordinance has been repromulgated.

State Government:

- In 2020, Kerala issued 81 ordinances, while Karnataka issued 24 and Maharashtra 21.

- Kerala has also repromulgated ordinances.

**Conclusion:**

- The **legal position** is clear, and **has been elucidated by constitution benches** of the Supreme Court.
- **Ordinances are to tackle exigencies when the legislature is not in session**, and **expire at the end of six weeks of the next meeting of the legislature**.
  - o This time period is given for the legislature to decide whether such a law is warranted.
- **Repromulgation is not permitted as that would be a usurpation of legislative power by the executive**.
- The **legislatures and the courts should check the practice**. That is what separation of powers and the concept of checks and balances means. By not checking this practice, the other two organs are also abdicating their responsibility to the Constitution.

## 3. EU Council approves conclusions on Indo-Pacific strategy

**What's in News?**

The Council of the European Union has approved **conclusions on a European Union strategy for cooperation in the Indo-Pacific**.

- The **renewed EU commitment** to the Indo-Pacific will have a **long-term focus** and will be based on **upholding democracy, human rights, the rule of law and respect for international law**.
- The strategy looks at **reinforcing the EU's strategic focus, presence and actions** with the aim to **contribute to regional stability, security, prosperity and sustainable development**, at a time of **rising challenges and tensions in the region**.

**EU's Concerns:**

- **Current dynamics** in the Indo-Pacific have given rise to **intense geopolitical competition** adding to increasing tensions on trade and supply chains as well as in technological, political and security areas.
- **Human rights** are also **being challenged**.
- These developments increasingly **threaten the stability and security of the region** and beyond, directly impacting the EU's interests.

## 4. India and Russia look for a reset

### Transformation in India-Russia relations

- The principal objective of the Russian Foreign Minister was to prepare the ground for the visit of President Vladimir Putin later this year.
- The Indian perspective on the Indo-Pacific was conveyed to the Foreign Minister of Russia.
- India insists that its Indo-Pacific initiatives seek **a cooperative order**, that the Quad is not the nucleus of a politico-military alliance.
- A $1 billion Indian line of credit for projects in the Russian Far East and activation of a **Chennai-Vladivostok maritime corridor** were announced in 2019.
- The message was that India's effort to **restrain Chinese aggression** is compatible with Russia's vision of a Eurasian partnership.
- Russia remains unconvinced, either because it feels India's words do not match its actions or because of its close ties with China.

### China factor in India-Russia relations

- India is concerned about Russia's China embrace, encompassing **close political, economic and defence cooperation:** Russia accounted for 77% of China's arms imports in 2016-20.
- India's apprehensions about their technology- and intelligence-sharing were heightened by Mr. Putin's remark that he would not rule out a **future Russia-China military alliance.**

### Russia-Pakistan relations

- Foreign Minister visited Pakistan directly after India — the first time a Russian Minister has done so.
- .He confirmed that Russia would strengthen Pakistan's **"counter-terrorism capability"** .
- Russia is now **Pakistan's second-largest defence supplier,** accounting for 6.6% of its arms imports in 2016-20.
- Their cooperation includes **joint "counter-terrorism" drills** and sharing perspectives on military tactics and strategic doctrines.

### Factors to consider about defence cooperation with Russia

- Despite being a major defence supplier of China and Pakistan, Russia remains a major supplier of cutting-edge military technologies to India.
- The **Stockholm International Peace Research Institute (SIPRI)** records that Russia supplied 49% of India's arms imports in 2016-20.

- SIPRI estimates that recent orders for Russian arms could boost future import figures. T
- his is a reality check.
- Defence cooperation is not a transactional exchange. Sharing of technologies and **strategies is underpinned by a mutual commitment to protection of confidentiality.**
- Sustainable defence cooperation is based on a credible assurance that what is transferred to our adversaries **will not blunt the effectiveness of our weapons systems.**
- In this already complex mix, the American sanctions legislation, CAATSA (Countering America's Adversaries Through Sanctions Act), adds an external layer of complexity.

**Criticality of geography influence India's relationship with Russia and China**

- The Eurasian landmass to India's north is **dominated by Russia and China.**
- Strategic and security interests in Central Asia, West Asia and Afghanistan dictate our engagement with the region and the connectivity projects linking it, like the **International North-South Transport Corridor** through Iran.
- India cannot vacate this space to a **Russia-China condominium** (with Pakistan in tow), without **potentially grave security consequences.**

**The broader geopolitical context**

- The principal element in this is the drive for the superpower status of a powerful, assertive China.
- The U.S., as the pre-eminent superpower, seeks to retard this process.
- In a deviation from classical geopolitical strategy, the U.S. is taking on both China and Russia.
- This move is driving Russia and China together and arguably accelerating the move to bipolarity.
- Even so, the differentials in military, economic and political power across countries may complicate the emergence of two clear poles of the Cold War variety.
- A decline in Western hostility to Russia could add to the complexity, if Russia takes the opportunity to loosen the Chinese embrace and **position itself as a pole in the multipolar world.**

**Conclusion**

India has to explore the space within these processes to maximise its global influence by steering clear of alliances and retaining the autonomy of policy.

## GS 3 : Economy, Science and Technology,Environment

### 5. RBI sets up committee to review working of ARCs

**Context:**

The RBI has set up a committee to review the working of Asset Reconstruction Companies (ARC).

**Details:**

- The **six-member committee** will be headed by Sudarshan Sen, former executive director, Reserve Bank of India (RBI).
- It has been set up to undertake **a comprehensive review of the working of ARCs** in the financial sector ecosystem and recommend suitable measures for enabling them to meet the growing requirements.

**Terms of Reference of the Committee:**

- The panel will **review the existing legal and regulatory framework** applicable to ARCs.
- It will **recommend measures to improve the efficacy** of ARCs.
- It will also **review the role of ARCs in the resolution of stressed assets**, including **under the Insolvency and Bankruptcy Code (IBC)**, and give **suggestions for improving liquidity** and **trading of security receipts**.
- It will also **review the business models of ARCs**.
- 
- An ARC is a **specialized financial institution** that **buys the Non-Performing Assets or bad assets from** banks and financial institutions so that the latter can clean up their balance sheets.
- In a nutshell, ARCs are in the **business of buying bad loans from banks**.
- Banks can sell the bad assets to the ARCs at a mutually agreed value and concentrate on normal banking activities.
- The **Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002** provides the legal basis for setting up ARCs in India.

## 6. 'About 52% adults not clear on defences against cybercrime'

**Context:**

**Survey** conducted by online security solutions provider **on cybercrime**.

**Key Findings:**

- About **52% of adults do not know how to protect themselves from cybercrime**.
- **59% of the adults** in India had **become victims of cybercrime** in the past 12 months.
- **Cybercrime victims** collectively **spent 1.3 billion hours** trying **to resolve these issues**.
- Many fell victim to **identity theft** in the past 12 months and most are **concerned about data privacy**.
- 70% believe that **remote work has made it much easier for hackers and cybercriminals** to take advantage of people.

**Cyber Security:**

- Cyber security refers to **preventing any form of unauthorized and malafide access to** any of the **electronic digital device**.
- Cyber espionage, cyber attack, cyber terrorism and cyber warfare are various forms of Cyber-Crimes.

### Cyber Volunteer Scheme

- It is the plan of the Ministry of Home Affairs to rope in around 500 persons to flag unlawful content on the Internet for "improvement in the cybercrime ecosystem of India".
- Its aim is to make **citizens contribute to the fight against cybercrime in the country**.
- It was launched by the **Indian Cyber Crime Coordination Centre (I4C)**.
- **I4C** was established in 2018 under the Ministry of Home Affairs to act as a **nodal point at the national level in the fight against cybercrime**.
- I4C has **seven key components**.
  o National Cyber Crime **Threat Analytics** Unit,
  o National Cyber Crime **Reporting** Portal,
  o National Cyber Crime **Training** Centre,
  o Cyber Crime **Ecosystem Management** Unit,
  o National Cyber Crime **Research and Innovation** Centre,
  o National Cyber Crime **Forensic Laboratory Ecosystem** and
  o Platform for **Joint Cyber Crime Investigation**

## 7. NASA Mars helicopter makes first flight on another planet

**Context:**

NASA successfully flew its tiny helicopter **Ingenuity** on Mars.

**Details:**

- Ingenuity's flight is the **first powered flight on another planet**.
- Ingenuity travelled to Mars attached to the underside of **Perseverance**, which touched down on Mars on February 18, 2021.
  - **Perseverance** is on a mission to **search for signs of extra-terrestrial life**.
- **Ingenuity**'s goal, by contrast, is to demonstrate its technology works, and it **won't contribute to Perseverance's science goals**.
- It has a **wireless communication system**, and is equipped with computers, navigation sensors, and two cameras.
- It is **solar-powered**, able to charge on its own.

- The **first powered flight on Earth** was achieved by the **Wright brothers in 1903** in North Carolina.
- A piece of fabric from that plane has been tucked inside Ingenuity in honour of that feat.

## 8. Protecting children in the age of AI

The article talks about the **need for protecting the rights, privacy, and well-being of children** in a **world** increasingly **powered by virtual reality and artificial intelligence (AI).**

**Details:**

- AI is **shaping behaviours, preferences, perceptions** of the world and much more.
- This has led to double imperatives of **getting all children online** and **creating child-safe digital spaces**.

**Significance of AI:**

- AI can offer **playful and creative opportunities for children**, that promote **enhanced literacy, social skills** and **language development**.
- In the field of education, **AI can and is being used to tailor learning materials and pedagogical approaches** to the child's needs.

o Intelligent tutoring systems, tailored curriculum plans, and imaginative virtual reality instruction offer rich and engaging interactive learning experiences that can **improve educational outcomes**.

**Concerns:**

Bridging the digital divide:

- **Not everyone can tap into the opportunities** offered by this transformation.
  - o According to UNICEF and the International Telecommunication Union (ITU), as many as **two-thirds of the world's children do not have access to the Internet** at home.

Unsafe virtual playgrounds:

- While **video gaming and chat forums** offer an online space for children to socialise with their friends, multiple reports identify such virtual playgrounds as **honeypots for child predators**.

Digital addiction:

- As an **ancillary consequence of the underlying business model**, AI systems driving many video games and social networks are designed to **keep children hooked** through algorithms and gimmicks.
- Children, from a tender age through adolescence, are becoming **digitally addicted**.

Post Truth discourse:

- Right when children and youth are **forming their initial views of the world**, **they are being sucked into virtual deep space**, including the universe of fake news, conspiracy theories, hype, hubris, online bullying, hate speech and the likes.

Classification through AI:

- While it is important for children to understand and appreciate different perspectives, preferences, beliefs and customs, to build bridges of understanding and empathy and goodwill, **AI is sorting them into tribes, and feeding them customised information**.
- Unless the **educational and performance data on children** is kept confidential and anonymous, it **can inadvertently typecast or brand children**, harming their future opportunities.

**How to balance the tremendous good AI can do for children, while mitigating inadvertent harm and misuse?**

**Way Forward:**

- Most countries **do not yet have the legal framework** in place. There is a need to **encourage and support** the **tremendous good AI can do** for children's growth and development, while **simultaneously mitigating the harm.**
- The next phase of the fourth Industrial Revolution must include an overwhelming push to extend Internet access to all children.
- There is a need for norms and standards to protect children online, similar to the **evolved norms and standards to protect children in the physical world.**
- There is a need for a multi-pronged action plan with **legal and technological safeguards**, greater awareness of how AI works behind the scenes.
- Children and young people **must be equipped with the knowledge, tools and awareness** to protect themselves, considering their unique vulnerabilities.
    - Tools like **trustworthy certification** and **rating systems** are needed to enable sound choices on safe AI apps.
    - **Anonymous accounts must be banned.**
    - **Enforceable ethical principles** of non-discrimination and fairness embedded in the policy and design of AI systems are needed.

**Conclusion:**

In short, a **safe online space for children**, **without algorithmic manipulation** and with **restricted profiling and data collection is the need of the hour**. Online tools that help prevent addiction, promote attention-building skills, expands children's horizons, understanding and appreciation for diverse perspectives, and help build their social-emotional learning capabilities are important.

**THE INDIAN EXPRESS**

# GS 2 : Polity, Governance, International Relations

**1. The great Afghan microcosm**

**Role of global powers in Afghanistan**

**1) What the US exit from Afghanistan mean**

- The exit of US and NATO forces from Afghanistan underlines the **end of the unipolar moment** in international affairs.
- Ending US military involvement, however, does not necessarily make Washington **marginal to the future evolution of Afghanistan.**
- The US remains the most significant global power even after the end of the unipolar moment.
- Its ability to **weigh in on multiple issues is considerable.**
- President Joe Biden is under some pressure at home not to be seen as abandoning Afghanistan.
- Nor can the US President ignore the dangers of Afghanistan re-emerging as **a breeding ground for international terrorism.**
- The US will figure prominently in any Taliban strategy to win **international diplomatic recognition** and political legitimacy.
- It will also need Western economic assistance for stabilising the war-torn country.

**2) Russia's role in Afghanistan**

- Russia is determined to play an important role in the future of Afghanistan.
- As a member of the UNSC, the joint leader of the Shanghai Cooperation Organisation with China, and a major source of weapons, Russian clout is real.
- Above all, Putin brings plenty of political will to compensate for Moscow's loss of superpower status as we have seen across the world, from Venezuela to Myanmar and Mozambique to Syria.

**3) How China will benefit from the US withdrawal**

- If the US is a distant power, **China is Afghanistan's neighbour.**

- Unlike Russia, China can deliver **massive economic resources** to Afghanistan under the umbrella of the Belt and Road Initiative.
- China's **expanding relations with the different nations of the Gulf** and Central Asia and a deep partnership with Pakistan lends **much potential depth** to Beijing's role in Afghanistan.
- Both Kabul and the Taliban have seen **China as a valuable partner** in the pursuit of their divergent interests.
- Beijing has often talked of **extending the China Pakistan Economic Corridor to Afghanistan.**
- However, China is vulnerable to the extremist politics of the region that fan the flames of religious and ethnic separatism in its Xinjiang province.

## Regional powers influencing Afghan dynamics

- One of the biggest concern about the Afghan future is the kind of influence Islamic radicals might regain in the country under Taliban rule and its consequences for the subcontinent, Central Asia, and the Middle East.
- Pakistan and Iran, which share long physical borders, have had the greatest natural influence on land-locked Afghanistan.
- When the Taliban ruled Afghanistan, **Saudi Arabia and the UAE** were the only countries other than Pakistan to recognise the government-run by its leader, Mullah Omar.
- They have taken a back seat in the current round of Afghan diplomacy, but would certainly return to the centre stage sooner than later.
- Meanwhile, bold Qatar and ambitious Turkey have injected themselves into the Afghan jousting.

## Influence of local actors

- The local actors in Afghanistan have agency of their own.
- All of them know how to **manipulate external powers** for their own ends in Afghanistan.
- The image of the Taliban as a creature of the Pakistan army is misleading, the Taliban is quite capable of making independent deals with the rest of the world.
- The Taliban's opponents, too, are likely to fight for their interests and will seek out external partners.

## Conclusion

Several contentions unfolding in and around Afghanistan promise to reorder the region again. Delhi needs much strategic activism to secure its interests and promote regional stability in this flux.

## 2. India-Cuba Relations

**Why in News**

The retirement of Raul Castro as the first secretary of Cuba's ruling Communist Party brings to an **end the six-decade-long rule of the "historic generation"**, who, under the leadership of Fidel Castro, captured power in 1959 through an armed revolution.

- Earlier in January 2021, the **US** State Department had **designated Cuba as a State Sponsor of Terrorism** for repeatedly providing support for acts of international terrorism in granting safe harbour to terrorists.

**Key Points**

- **History of Cuba:**
    o From the 15th century, it was a **colony of Spain until the Spanish–American War of 1898**, when Cuba was occupied by the United States and gained nominal independence as a de facto United States protectorate in 1902.
    o In 1940, Cuba attempted to strengthen its democratic system, but mounting political radicalization and social strife culminated in a **coup and subsequent dictatorship under Fulgencio Batista in 1952.**
    o Open corruption and oppression under Batista's rule led to his ousting in January 1959 by the 26th of July Movement, which afterwards established **communist rule under the leadership of Fidel Castro.**
    o Since 1965, the state has been governed by the **Communist Party of Cuba.**
    o **The country was a point of contention during the Cold War** between the Soviet Union and the United States, and a nuclear war nearly broke out during the **Cuban Missile Crisis of 1962.**
    o In 2019, a **new Constitution was approved** which officially recognizes the right to private property, while also reassuring the central government's authority over the regulation of production and land.
- **India-Cuba Relations:**
    o **Political:**
        - India was amongst the first countries to extend **recognition to Cuba after the 1959 Revolution.** Both countries have maintained close contacts with each other in various international fora, such as the **United Nations (UN), Non-Aligned Movement (NAM), World Trade Organization (WTO)**, etc.

- India has been supporting Cuba against US supported resolutions at the **UN Human Rights Council** and also consistently voted in favour of Cuban sponsored resolutions in the UN General Assembly calling for lifting of US sanctions against Cuba.
- Cuba **supports India's inclusion as a permanent member in the restructured UN Security Council.**
  - Cuba also **voted in favour of India's candidature for Non-Permanent Seat in UNSC.**
- Cuba has also joined the **International Solar Alliance**, an India-France initiative.
  o **Economic:**
  - Bilateral trade between India and Cuba stands at **USD 38.81 Million** (as of 2017).
  - India and Cuba agreed to collaborate in the areas of **Biotechnology, Homeopathy** and the **traditional system of medicine** during the visit of the President of India to Cuba in 2019.
  - India provides development assistance to Cuba in various sectors, and **in January 2019 made a donation of 60 tractors** with accessories, medicines and medical equipment to the island.
  o **Cultural:**
  - In Cuba, Yoga and Vipassana meditation are practiced. Interest in **Ayurveda** and Indian Naturopathy is increasing.
  - **Rabindranath Tagore's** birth anniversary is celebrated every year.
    - In May, 2007, a bust of Rabindranath Tagore donated by **the Indian Council for Cultural Relations (ICCR)** was unveiled in Old Havana.
    - There is a bust of Mahatma Gandhi and a statue of **Mother Teresa** in Havana.
  - Cuba also celebrated **International Day of Yoga**, **Mahatma Gandhi's 150th birth anniversary** and 550th anniversary of **Guru Nanak Dev.**

**Way Forward**

- Both Cuba and India have been united for many years and **there is common ground in their struggles to achieve a multi-polar world.** Both countries are great friends, however these **magnificent political ties must be developed more in the economic and commercial field.**

## GS 3 :Economy, Science and Technology,Environment

## 3. National Climate Vulnerability Assessment Report

**Why in News**

The **Department of Science and Technology** has released a report titled **'The Report Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework'.**

**Key Points**

- **About the Report:**
    - It **identifies the most vulnerable states and districts in India with respect to current climate risk** and key drivers of vulnerability.
    - It **aids in prioritizing adaptation investment**, developing and implementing adaptation programs.
    - The assessment is unique as it uses a common framework across the states & union territory to make them comparable thereby **empowering the decision-making capabilities** at the policy and administrative levels.
    - Some **key indicators** for the assessment include percentage of population living below the poverty line; income share from natural resources; the proportion of marginal and small landholdings, women's participation in the workforce; density of healthcare workers etc.
    - It is **part of the capacity building programme** under the two missions of the **National Action Plan on Climate Change** (total 8 missions).
        - National Mission on Sustaining the Himalayan Ecosystem (NMSHE)
        - National Mission on Strategic Knowledge for Climate Change (NMSKCC).
- **Key Findings of the Report:**
    - **Highly Vulnerable States:** It identified Jharkhand, Mizoram, Orissa, Chhattisgarh, Assam, Bihar, Arunachal Pradesh, and West Bengal as states highly vulnerable to climate change.
    - **Lower-middle Vulnerable States:** Himachal Pradesh, Telangana, Sikkim and Punjab.
    - **Low Vulnerable States:** Uttarakhand, Haryana, Tamil Nadu, Kerala, Nagaland, Goa and Maharashtra.

- o **Highly Vulnerable Districts:** Among all states, **Assam, Bihar, and Jharkhand have over 60% districts** in the category of **highly vulnerable districts.**
  - Vulnerability scores in all the districts of India lies in a very small range. It shows that **all districts & states are somewhat vulnerable with respect to current climate risk in India.**
- **Significance of the Findings:**
  - o The assessments can be used for India's reporting on the **Nationally Determined Contributions (NDCs)** under the **Paris Agreement.**
    - **NDCs** embody efforts by each country **to reduce national emissions and adapt to the impacts of climate change.**
  - o These assessments will help support India's National Action Plan on Climate Change.
  - o It will contribute to the development of more targeted climate change projects and will support the implementation of the **State Action Plans on Climate Change.**
  - o It will help in developing adaptation projects for the Green Climate Fund, **Adaptation Fund and funds from multilateral and bilateral agencies.**
  - o It will **also benefit climate-vulnerable communities** across India through development of better-designed climate change adaptation projects.

## Climate Risk

- **Climate-related extremes, such as heat waves, droughts, floods, cyclones, and wildfires**, reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability.
- Differences in vulnerability and exposure **arise from non-climatic factors and from multidimensional inequalities** often produced by uneven development processes. These differences shape differential risks from climate change.
- According to **The Germanwatch Global Climate Risk Index-2019, India was ranked 5th out of 181 countries**, implying an extremely high exposure and vulnerability.

## 4. Sulphur Dioxide Emissions from Caribbean Volcano

**Why in News**

The **Sulphur Dioxide (SO₂) emissions from a volcanic eruption in the Caribbean (La Soufriere Volcano)** have reached India, sparking fear of **increased pollution levels** in the northern parts of the country and **acid rain.**

- The **Caribbean is the region** roughly south of the United States, east of Mexico and north of Central and South America, consisting of the Caribbean Sea and its islands.

**Key Points**

- **About La Soufriere Volcano:**
    - It is **an active stratovolcano** on the **Caribbean island of Saint Vincent** in Saint Vincent and the Grenadines.
        - A **stratovolcano** is a tall, conical volcano composed of one layer of hardened lava, tephra, and volcanic ash. These volcanoes are characterized by a steep profile and periodic, explosive eruptions.
        - Saint Vincent and the Grenadines, **located in the southern Caribbean**, consists of more than 30 islands and cays, nine of which are inhabited.
    - It is the **highest peak in Saint Vincent** and has had five recorded explosive eruptions since 1718, most recently in April 2021.
        - The last time the volcano had **erupted was in 1979.**

- **Impact of the Eruption on Global Temperatures:**
    - **Volcanic emissions** reaching the stratosphere **can have a cooling effect on global temperatures.**
    - The most significant climate impacts from volcanic injections into the stratosphere come from the **conversion of sulphur dioxide** to **sulphuric acid**, which condenses rapidly in the stratosphere to form **fine sulphate aerosols.**
        - The **aerosols increase** the **reflection of radiation** from the Sun back into space, **cooling the Earth's** lower atmosphere or troposphere.
        - Bigger eruptions during the past century have caused a decrease in temperature of **0.27 degree Celsius** or more on the Earth's surface for up to three years.
- **Sulphur Dioxide and Pollution:**
    - SO₂ emissions that lead to high concentrations of SO₂ in the air generally also lead to the formation of other sulfur oxides (SOₓ). SOₓ can react with other compounds in the atmosphere to form small particles. These particles contribute to **Particulate Matter (PM) pollution.**

- o Small particles may penetrate deeply into the lungs and in sufficient quantities can contribute to health problems.
  - **Sulphur Dioxide and Acid Rain:**
    - o Acid rain results **when sulphur dioxide (SO₂) and nitrogen oxides (NOₓ) are emitted into the atmosphere** and transported by wind and air currents.
    - o The **SO₂ and NOₓ react with water, oxygen and other chemicals** to form sulfuric and nitric acids. These then mix with water and other materials before falling to the ground.

## 5. NASA's Ingenuity Mars Helicopter

**Why in News**

Recently, NASA's miniature **robot helicopter Ingenuity** performed a successful takeoff and landing on **Mars.** It was the **first powered, controlled flight on another planet.**

- The **first powered flight on Earth** was achieved by the **Wright brothers in 1903** in Kitty Hawk, North Carolina.

**Key Points**

- **About Ingenuity:**
  - o Ingenuity is the **first helicopter to fly on Mars.**
  - o It was carried by **NASA's rover called Perseverance** that was launched in July 2020.
  - o Ingenuity is able to fly using counter-rotating blades that spin at about 2,400 rpm (Rotations Per Minute).
  - o It has a **wireless communication system,** and is equipped with computers, navigation sensors, and two cameras.
  - o It is **solar-powered,** able to charge on its own.
- **Mission of the Helicopter:**
  - o The helicopter's mission is experimental in nature and completely independent of the rover's science mission.
  - o It will help collect samples from the surface from locations where the rover cannot reach.
- **Importance of this Flight:**
  - o Its performance during these experimental test flights will **help inform decisions about small helicopters for future Mars missions —** where

they can perform a support role as **robotic scouts, surveying terrain from above,** or as full standalone science craft carrying instrument payloads.

- **NASA's Perseverance Rover:**
  - Perseverance landed at the **Jezero Crater (an ancient river delta that has rocks and minerals that could only form in water)** of Mars in February 2021.
  - It will remain on the Red Planet for about two years and look for **finding past signs of life.**
  - The rover is designed to study signs of **ancient life, collect samples that might be sent back to Earth during future missions** and test new technology that might benefit future robotic and human missions to the planet.

**Mars**

- **Size and Distance:**
  - It is the **fourth planet from the Sun** and the **second-smallest planet** in the Solar System. It is also called **'Red Planet'.**
  - Mars is about half the size of Earth.
- **Similarity to the Earth (Orbit and Rotation):**
  - As Mars orbits the Sun, it completes one rotation every 24.6 hours, which is very similar to one day on Earth (23.9 hours).
  - Mars' axis of rotation is tilted 25 degrees with respect to the plane of its orbit around the Sun. This is similar with Earth, which has an axial tilt of 23.4 degrees.
  - Like Earth, Mars has distinct seasons, but they last longer than seasons on Earth since Mars takes longer to orbit the Sun (because it's farther away).
  - Martian days are called sols — short for 'solar day'.
  - Mars has two small moons, **Phobos and Deimos,** that may be captured asteroids.
- **India's Mars Orbiter Mission (MOM) or Mangalyaan:**
  - It was launched from the Satish Dhawan Space Centre in Andhra Pradesh by **Indian Space Research Organisation** in November 2013.
  - It was launched on board a PSLV C-25 rocket with aim of studying Martian surface and mineral composition as well as scan its atmosphere for methane (an indicator of life on Mars).

## 6. Dhruv MK III: Advanced Light Helicopter

**Why in News**

Recently, Indian Naval Air Squadron (INAS) 323, the first unit of the indigenously built **ALH (Advanced Light Helicopter) Dhruv Mk III aircraft**, was commissioned into the Indian Navy.

**Key Points**

- **About:**
    - The indigenously designed and developed Advanced Light Helicopter (ALH-DHRUV) is a **twin engine, multi-role, multi-mission new generation helicopter in the 5.5 ton weight class.**
    - It is a multi-role chopper with the **Shakti engine** manufactured by **Hindustan Aeronautics Limited (HAL).**
        - HAL is an Indian state-owned aerospace and defence company, headquartered in Bangalore, India. It is governed under the management of the Ministry of Defence.
        - HAL **conceptualised the Advanced Light Helicopter programme** in 1984. The major variants of Dhruv are classified as Dhruv Mk-I, Mk-II, Mk-III & Mk-IV.
- **Features:**
    - The aircraft, a step up from Mk 1, will be able to **mitigate low visibility during search and rescue operations even at night.**
    - It has a 0.7 mm gun, which will give a huge capability from a **LIMO (low intensity maritime operations)** standpoint.
    - The **automatic flight control system** is hugely superior to the previous one.
- **Role:**
    - The Mk III version of the ALH has an all glass cockpit and will be **used for search and rescue, special operations and coastal surveillance.**

**Prelims Practice Questions**

**1. Consider the following statements:**

1. The Great Indian Bustard (GIB) is a state bird of Rajasthan.
2. The GIB population is confined only to Rajasthan and Gujarat.
3. The GIB is listed as critically endangered in IUCN Red List.

Which of the statements given above is/are correct?

A 1 only
B 2 and 3 only
C 1 and 3 only
D 1, 2 and 3

**Answer : C**

**Explanation**

- The **Great Indian Bustard (GIB)**, the **state bird of Rajasthan**, is considered India's most critically endangered bird. **Hence, statement 1 is correct.**
- It is considered the flagship grassland species, representing the health of the grassland ecology.
- Its population is **confined mostly to Rajasthan and Gujarat.** Small populations occur in Maharashtra, Karnataka and Andhra Pradesh. **Hence, statement 2 is not correct.**
- The bird is under constant threats due to collision/electrocution with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.
- Protection Status:
  - **International Union for Conservation of Nature Red List: Critically Endangered. Hence, statement 3 is correct.**
  - Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix1
  - Convention on Migratory Species (CMS): Appendix I
  - Wildlife (Protection) Act, 1972: Schedule 1

**2. Consider the following statements with respect to the industrial applications of Oxygen:**

1. It is used as a bleaching chemical in paper manufacturing.
2. It is used for decarburization in steel production.
3. It is used as a raw material in the manufacturing of urea.

**Which of the given statement/s is/are correct?**

a. 1 and 3 only
b. 1, 2 and 3
c. 2 only
d. 1 and 2 only

**Answer: d**

**Explanation:**

- Oxygen is used as a bleaching chemical in paper manufacturing (pulp bleaching).
- It is used in steel production. Oxygen is used for decarburization (the process of decreasing the level of carbon in metals) and the conversion of hot metal formed in a blast furnace to liquid steel.
- Raw materials used to manufacture urea are liquid ammonia – $NH_3$ and liquid carbon dioxide – $CO_2$.
  - Carbon dioxide ($CO_2$) is prepared by the decomposition of limestone ($CaCO_3$). When $CaCO_3$ is heated, it decomposes to $CaO$ and $CO_2$.

**3. Consider the following statements:**

1. Meghalaya has the highest number of species of bats in the country.
2. The disc-footed bat is endemic to Nongkhyllem Wildlife Sanctuary in Meghalaya.

**Which of the given statement/s is/are correct?**

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

**Answer: a**

**Explanation:**

- There are 130 species of bats in India. The disc-footed bat has raised the variety of bat species in Meghalaya to 66 making the state the one with the highest number of species of bats in the country.

- The disk-footed bat is a species of vesper bat in the Vespertilionidae family found in Laos and Myanmar.
- Recently, the disc-footed bat was recorded in the northeastern Indian state's Lailad area near the Nongkhyllem Wildlife Sanctuary. It is about 1000 km west of the bats' nearest known habitat in Myanmar.

## 4. Consider the following statements:

1. The lake Baikal is the world's deepest lake situated in Siberia
2. The Baikal-GVD Telescope is one of the three largest neutrino detectors in the world.

Which of the statements given above is/are correct?

A 1 only
B 2 only
C Both 1 and 2
D Neither 1 nor 2

**Answer : C**

**Explanation**

- Russian scientists have launched **one of the world's biggest underwater neutrino telescopes** called the Baikal-GVD (Gigaton Volume Detector) in the waters of Lake Baikal, the **world's deepest lake situated in Siberia. Hence, statement 1 is correct.**
- The construction of this telescope, which started in 2016, is motivated by the mission to study in detail the elusive fundamental particles called neutrinos and to possibly determine their sources.
- Baikal-GVD Telescope is one of the three largest neutrino detectors in the world along with the IceCube at the South Pole and ANTARES in the Mediterranean Sea.
- GVD **is designed to detect high-energy neutrinos** that may have come from the Earth's core, or could have been produced during nuclear reactions in the Sun. **Hence, statement 2 is correct.**
- It will aid scientists' understanding of the origins of the universe since some neutrinos were formed during the Big Bang, others continue to be formed as a result of supernova explosions or because of nuclear reactions in the Sun.

**5. With reference to the Kalinga Architecture, consider the following statements:**

1. The Kalinga style of temples comes under the Nagara style.
2. The hall of the temple is called jagmohan.

Which of the statements given above is/are correct?

A 1 only
B 2 only
C Both 1 and 2
D Neither 1 nor 2

**Answer : C**

**Explanation**

- The Indian temples are broadly divided into Nagara, Vesara, Dravida and Gadag styles of architecture.
    - However, the temple architecture of Odisha corresponds to altogether a different category for their unique representations called Kalinga style of temple architecture.
    - This style broadly comes under the Nagara style. **Hence, statement 1 is correct.**
- In Kalinga Architecture, basically a temple is made in two parts, a tower and a hall. The tower is called deula and the **hall is called jagmohan. Hence, statement 2 is correct.**
    - The walls of both the deula and the jagmohan are lavishly sculpted with architectural motifs and a profusion of figures.
    - The most repeated form is the horseshoe shape, which has come from the earliest times, starting with the large windows of the chaitya-grihas.
    - It is the deula which makes three distinct types of temples in Kalinga Architecture:
        - Rekha Deula.
        - Pidha Deula.
        - Khakhara Deula.
    - The former two are associated with Vishnu, Surya and Shiva temples while the third is mainly with Chamunda and Durga temples.
    - The Rekha Deula and Khakhara Deula houses the sanctum sanctorum while the Pidha Deula constitutes outer dancing and offering halls.

**6. The 'Nongkhyllem Wildlife Sanctuary' is located in?**

A Nagaland
B Assam
C Meghalaya
D Tripura

**Answer : C**

**Explanation**

- **Nongkhyllem Wildlife Sanctuary** is situated in the Ri-Bhoi district near Lailad village and spreads over an area of 29 sq. kms. Nongkhyllem Wildlife Sanctuary is one of the famous attractions of **Meghalaya. Hence, option C is correct.**
- The Sanctuary falls in the Eastern Himalayan Global biodiversity hotspot.
- The sanctuary supports different species of fauna such as Royal Bengal Tiger, Clouded Leopard, Indian Bison, and Himalayan Black Bear etc.
- Among the birds, the rare species which can be spotted here are Manipur Bush Quail, Rufous Necked Hornbill and Brown Hornbill.

**Mains Practice Questions**

## 1. Explain the term welfare state? Discuss to what extent Indian fulfills the criteria of being a welfare state?

**Approach**

- Explain the characteristics of the Welfare State precisely.
- Highlight the features of the Welfare State of India with suitable examples.
- Highlight a few challenges faced by India in becoming a Welfare State.
- Conclude Suitably.

## 2. Discuss the schism between the developed and developing world in climate change negotiations and coming up with a collective global action.

**Approach**

- Start the answer by briefly discussing the context of growing Greenhouse gases emission.
- Discuss the various reasons for conflict between developed and developing countries.
- Conclude Suitably.