

## DAILY CURRENT AFFAIRS (DCA)

Time: 45 Min

Date: 15-05-2025

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## BIRTH RATES IN DELHI, KERALA, AND T.N. DECLINING AT TWICE THE RATE OF NATIONAL AVERAGE

Syllabus: GS1/Human Geography

### Context

- The annual crude birth rates for Tamil Nadu, Delhi and Kerala are declining at twice the rate of the national average.

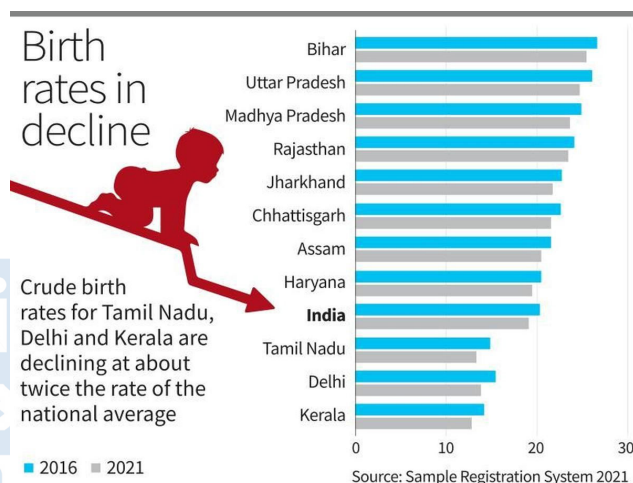
### About

- The data from the **Sample Registration System (SRS) Statistical Report 2021**, was released by the **Registrar General of India**.
- The SRS is the **largest demographic survey** in the country, meant to provide **annual estimates on fertility and mortality indicators** such as birth rates, death rates, etc.
- The **crude birth rate (CBR)** is a demographic measure that indicates the **number of live births per 1,000 people in a population** during a specific time period, usually a year.

### Major Findings

- India's Total Fertility Rate (TFR)** has remained constant at 2.0 in 2021, the same as in 2020.
  - The average number of children born to a woman during her childbearing years.
  - A TFR of **2.1** is considered the replacement level needed to maintain a stable population.
- All-India crude birth rate** was 19.3 in 2021, dropping at a rate of **1.12% every year from 2016 to 2021**.
- The birth rate for Tamil Nadu** has been **declining** at a rate of 2.35% every year, Delhi's has been declining at a rate of 2.23% and Kerala's is dropping at a rate of 2.05%.
- Birth rates were seen declining faster than the national average** for Maharashtra (1.57%), Gujarat (1.24%), Odisha (1.34%), Himachal Pradesh (1.29%), Haryana (1.21%), and Jammu and Kashmir (1.47%).
- The slowest rate of decline in birth rate** was seen in States such as Rajasthan (0.48%), Bihar (0.86%), Chhattisgarh (0.98%), Jharkhand (0.98%), Assam (1.05%), Madhya Pradesh (1.05%), West Bengal (1.08%), and Uttar Pradesh (1.09%).
- Rise in the number of registered births** were seen in about 11 States and union territories: Bihar, Rajasthan, Uttar Pradesh, Uttarakhand, West Bengal, Jammu and Kashmir, Ladakh, Lakshadweep, Arunachal Pradesh, Mizoram and Nagaland.

- Total fertility rate (TFR):** States such as Bihar, Uttar Pradesh, Rajasthan, Madhya Pradesh had a TFR higher than the national average.
  - The TFR measures the **average number of children expected to be born per woman during her entire span of reproductive period**.
- Gross reproduction rate (GRR):** The GRR for India stood at 1, meaning that on an average, each woman in India is having one daughter who survives to reproductive age and has children of her own.
  - In Bihar, Rajasthan, Madhya Pradesh, and Uttar Pradesh the GRR was significantly higher than the India average.



### Concerns

- Uneven Decline in Birth Rates Across States:** Some states (e.g., Bihar, UP, MP, Rajasthan) show slow or minimal decline in birth rates, contributing to regional population imbalances.
  - These high-birth-rate states may continue to drive overall population growth, putting pressure on resources, infrastructure, and services.
- Demographic Divergence Between Regions:** Southern and western States are moving toward or below replacement-level fertility, while northern and eastern States remain above it.
  - This creates policy and planning complexity — a “two-speed” demographic transition in the country.
- Aging Population Risk in Low Fertility States:** States with low TFR (e.g., Kerala, West Bengal) risk aging population challenges shrinking labor force, increased burden on healthcare and pensions, and need for revised economic and social policies.

- **Persistent High Fertility in Some States:** Despite national TFR at 2.0, states like Bihar (TFR 3.0) and UP (TFR 2.7) still report high fertility.
  - ♦ Indicates gaps in education, healthcare, and awareness, particularly in rural and underserved areas.

#### Way Ahead

- **Enhance Family Planning Services:** Expand access to contraception and reproductive health, especially in high-fertility states.
- **Promote Female Education:** Focus on girl child education and awareness to delay marriage and childbirth.
- **Improve Data Quality:** Align and strengthen SRS and CRS systems; expedite the delayed Census for accurate planning.
- **Prepare for Aging Population:** In low-fertility states, build systems for elderly care, healthcare, and pensions.
- **Address Regional Imbalances:** Promote development in high-growth regions through jobs, education, and infrastructure.
- **Policy Coordination:** Ensure Centre-State collaboration and flexible funding for population control programs.

Source: TH

## B.R. GAVAI SWORN IN AS CHIEF JUSTICE OF INDIA

Syllabus: GS2/ Polity and Governance

#### Context

- Justice Bhushan Ramkrishna Gavai was sworn in by President Droupadi Murmu as the 52nd Chief Justice of India.

#### Constitutional Provisions

- The Constitution of India does not mention any procedure for appointing the CJI.
  - ♦ **Article 124 (1)** of the Constitution merely says, "There shall be a Supreme Court of India consisting of a Chief Justice of India."
- **Clause (2) of Article 124** of the Constitution says that every Judge of the Supreme Court shall be appointed by the President.
  - ♦ Thus, in the absence of a constitutional provision, the procedure to appoint CJI relies on convention.

#### What is the Convention?

- **The outgoing CJI recommends his successor** a practice, which is strictly based on seniority.
- Seniority, however, is not defined by age, but by the number of years a judge has been serving in the top court of the country.

#### Eligibility

- Apart from being an Indian citizen, the person must;
  - ♦ Have been for at least **five years a Judge of a High Court** or of two or more such Courts in succession or,
  - ♦ Have been for **at least ten years an advocate of a High Court** or of two or more such Courts in succession, or
  - ♦ Be, in the opinion of the President, a **distinguished jurist**.

#### Tenure and Retirement

- The Constitution **does not fix a tenure** for the Chief Justice.
- The **retirement age** for Supreme Court judges, including the CJI, is **65 years**.

#### Removal of CJI

- The constitution provides that a judge can be removed only **by an order of the president**, based on a motion passed by both houses of parliament.
- The procedure for removal of judges is elaborated in the **Judges Inquiry Act, 1968**. The Act sets out the following steps for removal from office:

### IMPEACHMENT PROCEEDINGS

- ▶ A **removal motion** signed by 100 members (in case of Lok Sabha) or 50 members (in case of Rajya Sabha) is to be given to the Speaker/Chairman.

- ▶ If the motion is admitted, then a **three-member committee to investigate** into the charges is constituted.

- ▶ If the committee finds the judge to be guilty of the charges (**misbehaviour or incapacity**), the House in which the motion was introduced, can take up the consideration of the motion.

**Special majority:** Majority of total membership of the House & majority of not less than two thirds members present and voting.

- ▶ Once, the House in which removal motion was introduced passes it with **special majority**, it goes to the second House which also has to pass it with a special majority.

- ▶ After the motion is passed, an **address** is presented to the President for removal of the judge. The President then passes an order removing the judge.

Source: TH



## INDIA'S MAJOR PORTS ACHIEVE HISTORIC MILESTONES IN FY 2024-25

Syllabus: GS3/Economy

### Context

- In FY 2024-25, Major Ports registered an impressive annual growth rate of 4.3% in cargo handling, increasing from 819 million tonnes in FY 2023-24 to ~855 million tonnes in FY 2024-25.

### About

- **Average Turnaround Time (TRT)** improved by 48%, reducing from 96 hours in FY 2014-15 to 49.5 hours in FY 2024-25.
- **Major Ports' financial performance** has been equally impressive, with **total income more than doubling** over the past decade, registering a 7.5% CAGR over 10 years.
- **Operational efficiency also improved significantly**, with the operating ratio declining from 64.7% in FY 2014-15 to 42.3% in FY 2024-25.
- **Private sector participation has been instrumental** in this transformation, with investments in PPP projects at Major Ports increasing **threefold**.

### India's Port Sector

- India has **major ports** (central government controlled) and **minor ports** (state government controlled).
  - ♦ 13 Major Ports
  - ♦ 217 Non-major (Minor/Intermediate) Ports
- The ports are managed by the **Ministry of Ports, Shipping and Waterways**.
- **Strategic Position:** Located along the world's busiest shipping routes, India is a key trading hub and a rising global power.
- **India's Maritime Sector Overview:** Handles 95% of India's trade by volume and 70% by value, with port infrastructure critical to the economy.
- **Port Ranking Improvement:** India's port ranking improved from **54th in 2014 to 38th in 2023**, with **nine Indian ports now in the top 100 globally**.
- **Growth in Cargo-handling:** Between 2014-15 and 2023-24, major ports increased their annual cargo-handling capacity by 87.01%.
- **Maritime Sector's Importance:** India is the **16th-largest maritime nation**, occupies a key position in global shipping, with major trade routes passing through its waters.

- **Future Goals:** India has outlined investments of **US\$ 82 billion in port infrastructure projects by 2035** to bolster the maritime sector.

- ♦ India plans to establish a new shipping company to **expand its fleet by at least 1,000 ships within a decade**.

### Challenges

- **Infrastructure Gaps:** Inadequate port infrastructure and outdated facilities at some ports, limiting capacity and efficiency.
- **Congestion:** High traffic volumes at major ports leading to delays, increased turnaround times, and reduced productivity.
- **Environmental Concerns:** Pollution and sustainability issues, including emissions from ships and port operations.
- **Logistics Bottlenecks:** Inefficient transport connectivity between ports, roads, and railways, impacting smooth cargo movement.
- **Global Competition:** Rising competition from other global maritime hubs, necessitating continuous investment and modernization.
- **Port Security:** Ports are vulnerable to smuggling, piracy, and terrorism. Security infrastructure is often inadequate.
- **Cybersecurity:** Increasing digitalization also raises concerns about cyber threats to port operations.

### Initiatives by Government

- **Sagarmala Programme:** Focuses on leveraging India's coastline and of navigable waterways.
  - ♦ Supports port infrastructure, coastal development, and connectivity.
  - ♦ Financial aid for projects like coastal berths, rail/road connectivity, fish harbours, cruise terminals.
- **Maritime India Vision 2030 (MIV 2030):** Aiming for India to become a top 10 shipbuilding nation by 2030 and create a world-class, efficient, and sustainable maritime ecosystem.
  - ♦ Includes 150+ initiatives across ten key maritime sectors.
- **Inland Waterways Development:** 26 new national waterways identified by the Inland Waterways Authority of India (IWAI).
  - ♦ Provides alternative, sustainable transport, easing road/rail congestion.
- **Green Tug Transition Program (GTTP):** Aims to replace fuel-based harbour tugs with eco-friendly, sustainable fuel-powered tugs.

- ♦ Transition to be completed by 2040 across major ports.
- **Sagarmanthan Dialogue:** An annual maritime strategic dialogue to position India as a global center for maritime conversations.
- **Maritime Development Fund:** 25,000 crore fund for long-term financing to modernize ports and shipping infrastructure, encouraging private investment.
- **Shipbuilding Financial Assistance Policy (SBFAP 2.0):** Modernized to help Indian shipyards compete with global giants.

### Way Ahead

- India's Major Ports are now poised to take their competitiveness to the next level, supported by continuous investment in mechanisation, process reengineering, port community systems, and multi-modal logistics integration.
- These initiatives have resulted in higher cargo volumes, reduced vessel wait times, optimized capacity utilization, and increased investor confidence.
- As India expands its global trade footprint and modernises logistics infrastructure, FY 2024-25 stands as a testament to the Ministry's strategic vision and collaborative efforts of public authorities and private stakeholders.

Source: PIB

## COLOMBIA JOINS BELT AND ROAD INITIATIVE

Syllabus: GS2/ International Relation

### In News

- Colombia formally agreed to join **China's Belt and Road infrastructure initiative**.

### About Belt and Road Initiative

- **Genesis:** Launched in 2013 by Chinese President Xi Jinping under the initial name One Belt One Road (OBOR).
- **Aim:** To enhance regional integration, boost trade, and stimulate economic growth by developing infrastructure and connectivity across Asia, Africa, and Europe.
- **Key Components:**
  - ♦ **Silk Road Economic Belt:** Overland routes connecting China to Central Asia, Europe, and the Middle East.

- ♦ **21st Century Maritime Silk Road:** Sea routes connecting China's eastern coast to Southeast Asia, South Asia, Africa, and Europe.

### China's Economic Influence & US Concerns

- China is now the largest trading partner of **several Latin American countries (Brazil, Chile, Peru)**.
- China is expanding its footprint through the **Belt and Road Initiative (BRI)**, while the U.S. views Chinese presence near strategic locations like the **Panama Canal as a national security threat**.
- **The U.S. accuses China of trapping countries in unsustainable debt for geopolitical leverage.**

### India's Concerns with BRI

- **Sovereignty Concerns:** A major point of contention for India is the China-Pakistan Economic Corridor (CPEC), a flagship project under the BRI, which passes through Pakistan-occupied Kashmir (PoK), a territory India claims as its own.
- **Security Threats:** Like Nepal formally joined the BRI in 2017 and China's increasing infrastructure projects in Nepal, particularly those close to the border (like the Chinese-funded airport in Pokhara), are seen as potentially compromising India's security.
- **Erosion of Regional Influence:** BRI projects in Nepal and other South Asian nations (Sri Lanka, Maldives, Bangladesh) reflect China's growing political-economic footprint, diluting India's traditional sphere of influence.
- ♦ Part of the broader "String of Pearls" strategy — perceived Chinese effort to encircle India with pro-China regimes or strategic assets.
- **Debt Trap Diplomacy:** India is wary that China might use its economic leverage through the BRI to ensnare smaller neighboring countries like Nepal in debt traps.

Source: TH

## INDIA & 6G TECHNOLOGY

Syllabus: GS3/Science & Technology

### Context

- Recently, the Union Minister of State for Communications, at the **Bharat 6G International Conference**, said that India has emerged as **one of the top six nations** globally in **6G patent filings**.

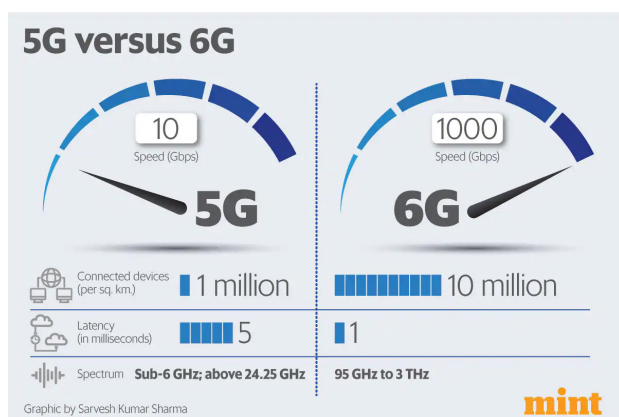
### India's Leadership in 6G Patent Filings

- 111+ funded research projects worth over 300 crore.
- Global partnerships with Japan, Singapore, and Finland to accelerate innovation.
- Breakthroughs in terahertz communication and AI-native networks.
- The **adoption of 6G** is expected to create entirely new industries and revolutionize existing ones, potentially **contributing US\$ 1 trillion (Rs. 85,37,000 crore)** to India's economy by 2035.

### Bharat 6G Vision

- It aims to **develop and deploy 6G infrastructure**, ensuring India's leadership in global digital connectivity by 2030.
- It aligns with broader policy goals that emphasize **domestic innovation and international collaboration**, and ensures that 6G technology remains **affordable, scalable, and accessible**, preventing digital exclusion and accelerating national development.
- **Phased Approach to 6G Development:**
  - ♦ **Research & Development (2023–2025):** Focuses on developing foundational technologies, conducting pilot programs, and innovating new network architectures.
  - ♦ **Infrastructure Rollout (2025–2030):** Supports large-scale deployment, ensuring seamless integration of advanced telecom solutions into India's digital ecosystem.

### Promise of 6G Technology



- Sub-millisecond latency for ultra-fast connectivity.
- Intelligent self-healing networks to enhance reliability.
- Volumetric connectivity, extending from underwater to aerospace applications.

- AI-native networks to enhance automation and efficiency.
- Terahertz communication breakthroughs for ultra-fast data transmission.

### Technology Innovation Group on 6G (TIG-6G)

- It is a **collaboration** between industry leaders, academic institutions, and research organizations, **established by DoT** to drive innovation.
- It is responsible for **drafting India's 6G roadmap and shaping policies** that aim to **define India's future telecom landscape**.

### Spectrum Allocation for 6G (IMT2030)

- India is actively engaged in global spectrum discussions, with the **International Telecommunication Union (ITU)** studying key frequency bands for **IMT2030 (6G)**:
  - ♦ 4400-4800 MHz
  - ♦ 7125-8400 MHz
  - ♦ 14.8-15.35 GHz
- The **World Radiocommunication Conference 2027** will determine whether these bands will be formally identified for 6G deployment.
  - ♦ India has **already identified multiple frequency bands** for IMT-based telecom services, including:
    - ♦ 600 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300 MHz & 26 GHz

### Oversight & Industry Collaboration

- A proposed **Bharat 6G Alliance (B6GA)** aims to further strengthen coordination among Indian industry leaders, researchers, and academic institutions, fostering a robust innovation ecosystem.

Source: TH

## BREAKTHROUGH IN MAKING 2D METALS

### Syllabus: GS3/Science and Technology

#### Context

- A team of Chinese scientists reported a new method to create true **2D sheets of metals** like bismuth, gallium, indium, tin, and lead.
  - ♦ This could pave the way for next-generation **quantum and electronic technologies**, including topological insulators.

**Quantum Dot and Quantum Confinement**

- **Quantum Dot:** A semiconductor particle only a few nanometers in size; behaves like a “giant atom” due to restricted electron movement.
- **Quantum Confinement:** When electron movement is restricted to a small space, energy levels become quantized, like in atoms.

**Low-Dimensional Materials**

- A material is described as **1D or 2D** depending on **how much it confines its electrons**.
- 2D metals are **ultra-thin layers of metal atoms**, usually just 1–2 atoms thick, where electrons are confined to move only in two dimensions.
- **Graphene is a famous 2D material:** It consists of a single sheet of carbon atoms bonded to each other in a hexagonal pattern.
  - ♦ The electrons in this sheet can only move around in two dimensions, thus 2D.
  - ♦ As a result they behave as if they don't have mass, for example, giving rise to properties not seen in other materials.

**Challenges in Making 2D Metals**

- Unlike carbon, which easily forms 2D sheets (graphene), metal atoms prefer bonding in 3D.
- Attempts to make atom-thin metal sheets have largely failed or produced sheets only a few nanometers thick — too thick for true quantum confinement.

**Breakthrough Method: The 2D Sandwich Technique**

- Metal powder is melted between MoS-coated sapphire plates and compressed under 200 million Pa pressure, forming ultra-thin sheets — like bismuth, just 6.3 Å thick (about two atoms deep).

**Why Do 2D Metals Matter?**

- **Expected Properties:**
  - ♦ Topological Insulation: Conducts electricity only along edges, not across the surface.
  - ♦ Nonlinear Hall Effect: Generates perpendicular voltage under electric field.
  - ♦ Field Effect Tunability: Electrical conductivity controlled via external fields.
- **Applications:**
  - ♦ Ultra-sensitive sensors (medical/military).
  - ♦ High-efficiency quantum computing.
  - ♦ Next-gen electronic and photonic devices.

Source: TH

**CABINET APPROVES SEMICONDUCTOR UNIT IN UTTAR PRADESH**

Syllabus: GS3/Economy

**Context**

- The Union Cabinet approved the establishment of a Semiconductor Unit in Uttar Pradesh.
  - ♦ It is the sixth project to receive approval under the **India Semiconductor Mission**.

**About**

- The unit approved is a joint venture of **HCL and Foxconn** and will attract investment of Rs 3,700 crore.
  - ♦ Together they will set up a plant near Jewar airport in **Yamuna Expressway Industrial Development Authority (YEIDA)**.
- This plant will **manufacture display driver chips** for mobile phones, laptops, automobiles, PCs, and a myriad of other devices that have displays.
- The plant is designed for **20,000 wafers per month**. The design output capacity is **36 million** units per month.

**Plants Under India Semiconductor Mission**

- Four plants—including a fab and three assembly units — are in **Gujarat** and one assembly and packaging plant is under construction in **Assam**.
- **India's other five semiconductor development projects** are in;
  - ♦ Micron Technology - Sanand, Gujarat.
  - ♦ Tata Electronics Pvt. Ltd. with PSMC (Taiwan) – Dholera, Gujarat
  - ♦ Tata Semiconductor Assembly and Test Pvt Ltd (TSAT) - Morigaon, Assam.
  - ♦ CG Power, in partnership with Renesas Electronics Corporation, Japan and Stars Microelectronics, Thailand - Sanand, Gujarat.
  - ♦ Kaynes Semicon - Sanand, Gujarat.

**What is a Semiconductor?**

- Semiconductors also referred to as ‘chips’ are highly complex products to design and manufacture, providing the essential functionality for electronic devices to process, store and transmit data.
- The chip comprises interconnections of **transistors, diodes, capacitors** and **resistors**, layered on a wafer sheet of silicon.



### Significance of the project

- **Job Creation:** Semiconductor manufacturing facilities in India create many direct and indirect employment opportunities.
- **Reduced Dependence on Imports:** Establishing more domestic semiconductor industries will enhance the country's self-reliance and resilience in times of geopolitical tensions or disruptions in global supply chains.
- **Import Dependency:** India imported 1.71 lakh crore worth of semiconductors in 2024. Nearly 38% came from China.
- **Export Opportunities:** India's semiconductor market is projected to grow from \$22 billion (2019) to \$110 billion by 2030.
  - ♦ Expected to account for 10% of global chip consumption, driven by demand in smartphones, 5G, EVs, AI, IoT.
- **Strategic Importance:** Semiconductor chips are critical components in various strategic sectors such as defense, aerospace, and telecommunications.
  - ♦ Having a domestic semiconductor industry ensures greater control over the supply chain and reduces vulnerabilities to disruptions or external pressures.
- **India's R&D Edge:** India houses 20% of the world's semiconductor design engineers.
  - ♦ Boosts skills and tech in AI, robotics, EVs, precision tools, and advanced electronics.

### Challenges faced by India's semiconductor industry

- **Countries** like the US and EU, also sense the semiconductor opportunity and have rolled out more lucrative incentive schemes than India.
- **High capital cost:** A fab facility can cost upwards of \$5–10 billion.
- **Talent pool:** While India is the biggest back office for design engineers of all major chip companies, skilled talent that can work on factory floors of a fabrication plant is still hard to come by.
- **Research and Development:** India currently lacks research in semiconductor design, where the future of the chip is decided.
- **Power supply:** An uninterrupted supply of power is central to the process, with just seconds of fluctuations or spikes causing millions in losses.
- **Water intensive:** Chip-making requires gallons of ultrapure water in a single day.

### Initiatives for Semiconductor Industry

- **The India Semiconductor Mission (ISM)** aims to build a strong semiconductor and display ecosystem, positioning India as a global hub for electronics manufacturing and design, while serving as the nodal agency for the efficient and seamless implementation of semiconductor and display schemes.
- **Production Linked Incentive scheme:** Incentives are being provided for semiconductor design and packaging.
- **QUAD Semiconductor Supply Chain Initiatives:** To assess the capacity, pinpoint vulnerabilities, and enhance supply chain security for semiconductor and its critical components.

Source: PIB

## INDIA LAUNCHES FIRST CLUSTER OF CCU TESTBEDS FOR CEMENT INDUSTRY

Syllabus: GS3/ Environment

### In News

- India launched its first cluster of Carbon Capture and Utilisation (CCU) testbeds for the cement sector.

### About Carbon Capture and Utilisation (CCU)

- **Definition:** Carbon Capture and Utilisation (CCU) refers to a set of technologies that involve capturing carbon dioxide (CO<sub>2</sub>) emissions from sources like power plants and industrial facilities and then converting them into useful products.
- **Process:** The first step involves separating CO<sub>2</sub> from other gases emitted by industrial processes or even directly from the atmosphere (Direct Air Capture - DAC). Various technologies like solvent absorption, membrane separation, and adsorption are used for this purpose.
- **Examples of CO<sub>2</sub> Utilisation:** Injecting CO<sub>2</sub> into oil reservoirs to increase oil extraction, CO<sub>2</sub> can be combined with hydrogen to create synthetic fuels like methanol, ethanol or captured CO<sub>2</sub> can be used to produce concrete, cement alternatives, and other construction materials.

### Significance of the Initiative

- **Decarbonising Hard-to-Abate Sectors:** Cement, steel, power, oil & gas, and fertilizer industries contribute significantly to India's industrial CO



emissions. CCU offers a scalable pathway to reduce emissions while maintaining economic growth.

- **Fulfilling Climate Commitments:** The initiative supports India's Nationally Determined Contributions (NDCs) under the Paris Agreement and aligns with long-term Low Emission Development Strategies (LEDS).
- **Public-Private-Academia Synergy:** A unique PPP model brings together academia, industry, and government to deploy translational R&D.
- **Green Cement Production:** Focused innovation may reduce the cost of green cement, enabling wider market adoption and decarbonisation of construction.
- **Circular Economy:** CCU promotes a circular approach by turning a waste product (CO<sub>2</sub>) into a valuable resource, reducing reliance on fossil-based feedstocks.

Source: DTE

## PLASTIC WASTE IN HIMALAYAS

Syllabus: GS3/ Environment

### Context

- According to a report more than 84% of the plastic waste collected in Himalayan region is posing serious environmental and systemic challenges.

### About

- According to data gathered from the **Himalayan Cleanup (THC) 2024**, conducted across nine Himalayan states, over **1.2 lakh pieces** of waste were audited—**88%** of which were plastic.
- Within plastic waste, **84.2% was attributed to food and beverage packaging**, and **71%** of this was non-recyclable.
- **Sikkim and Darjeeling (West Bengal)** emerged as the top contributors in terms of volume, followed by Ladakh, Nagaland, and Uttarakhand.

### Impact of plastic waste

- **Impact on Tourism:** The worst plastic accumulation was found around tourist destinations, rivers, and protected areas, indicating the role of unregulated tourism and poor infrastructure.
- **Climate and Biodiversity Linkages:** Plastic waste in the Himalayas contributes to soil and water contamination, affecting biodiversity and local food systems.
- **Health Hazards:** Accumulated plastic waste near human settlements leads to vector-borne

diseases, water pollution, and respiratory problems due to open burning.

### Challenges in Waste Governance in the Himalayas

- **Lack of Localised Waste Infrastructure:** Most mountain towns and villages lack basic waste collection, segregation, and treatment facilities.
- **Plastic Ban Policies:** Although several Himalayan states have banned certain plastic products, enforcement is weak, due to inconsistent monitoring, and a lack of viable alternatives for local communities and vendors.
- **Low Awareness:** There is insufficient awareness among producers about their responsibilities under **Extended Producer Responsibility (EPR)**.
  - ♦ Also tourists often lack both education and sensitivity towards sustainable practices.
- **Dispersed Settlements:** The rugged topography, scattered population, and seasonal weather conditions make it logistically challenging to establish and maintain effective waste management systems across the Himalayan belt.

### India's Efforts in Tackling Plastic Waste

- **Extended Producer Responsibility (EPR):** The Indian government has implemented EPR, making plastic manufacturers responsible for managing and disposing of the waste generated by their products.
- **Plastic Waste Management (Amendment) Rules, 2022:** It prohibits manufacture, import, stocking, distribution, sale and use of plastic carry bags having thickness less than **120 microns**.
- **Swachh Bharat Abhiyan:** It is a national cleanliness campaign, which includes the collection and disposal of plastic waste.
- **Plastic Parks:** India has set up Plastic Parks, which are specialized industrial zones for recycling and processing plastic waste.

### Way Ahead

- **Mountain-Sensitive Waste Policies:** Waste management policies that consider geographic remoteness, traditional practices, and ecological sensitivity are essential.
- **Decentralised Waste Systems:** Focus should be on community-based, low-impact waste solutions rooted in traditional knowledge and local governance.
- **Sustainable Tourism Practices:** Establish mandatory waste audits and management protocols at tourist sites, especially around water bodies and pilgrimage circuits.

Source: TH

## NEWS IN SHORT

### NATIONAL BANK FOR FINANCING INFRASTRUCTURE AND DEVELOPMENT

**Syllabus: GS3/Economy**

#### Context

- **The National Bank for Financing Infrastructure and Development** held a non-deal investors meeting in Hong Kong.

#### About NaBFID

- It is a **specialised Development Finance Institution (DFI)**, established in **2021** under the National Bank for Financing Infrastructure and Development Act, 2021.
- **Ministry: Ministry of Finance.**
- It is aimed at **supporting the country's infrastructure sector**, which can significantly gain from an enabling credit flow by means of attractive instruments and channelized investment.
- **The Bank was set up with the essential objectives of** addressing the gaps in long-term non-recourse finance for infrastructure development, strengthening the development of bonds and derivatives markets in India, and sustainably boosting the country's economy.

Source: ET

### TSARAP CHU CONSERVATION RESERVE

**Syllabus: GS3/Environment and Conservation**

#### Context

- Himachal Pradesh notified the **Tsarap Chu Conservation Reserve under the Section 36A(1) of the Wildlife (Protection) Act, 1972.**
  - ♦ Tsarap Chu joins Darlaghat, Naina Devi, Potter Hill, and Shilli as **Himachal Pradesh's fifth conservation reserve.**

#### Conservation Reserve

- A Conservation Reserve is a type of protected area designated under the **Wildlife Protection Act, 1972 (amended in 2002).**
- It is meant to protect landscapes, ecosystems, habitats, and wildlife that lie outside national parks and wildlife sanctuaries but still have ecological, biological, or cultural importance.

#### About Tsarap Chu

- **Location:** Tsarap Chu is bounded by the Union Territory of Ladakh to the north, the Kibber Wildlife Sanctuary extending up to Malang Nala and Lungar Lungpa to the east, Kabjima Nala to the south and Chandratul Wildlife Sanctuary to the west.
  - ♦ It is also the location for the confluence of the **Unam River and Charap Nala.**
- **Biodiversity:** It is one of the select areas in Himachal Pradesh with a **high density of snow leopards.**
  - ♦ **This area is also the catchment area of the Charap Nala**, an important wildlife corridor connecting the Kibber and Chandratul sanctuaries, which is extremely important for biodiversity.

Source: DTE

### BHARGAVA STRA

**Syllabus: GS3/ Defence**

#### In News

- India has successfully tested an indigenous counter-drone system dubbed as '**Bhargavastra**'.

#### About

- Designed and developed by **Solar Defence and Aerospace Limited (SDAL)**, Bhargavastra uses **minor rockets to detect and neutralise drones** at a range of up to 2.5 km.
- The Bhargavastra system deploys unguided **micro rockets to neutralise swarms of drones with a lethal radius of 20 metres.**
- The system's second layer of defence is the guided micro-missile, which ensures precise and effective targeting. It has the capability to fire 64 micro missiles simultaneously.
- Its radar has a range of **6 to 10 km for locating small aerial threats.**
- The system can also be integrated with the existing network-centric warfare infrastructure. It allows integration of soft kill options like jamming and spoofing.

Source: TH

## WORLD FOOD PRIZE 2025

### Syllabus: Miscellaneous

#### Context

- Brazilian microbiologist **Mariangela Hungria**, has been named the 2025 World Food Prize Laureate.

#### About

- Hungria developed seed and soil treatments using beneficial bacteria like **rhizobia** and **Azospirillum brasilense**.
- Her innovations help soybeans fix nitrogen naturally and enhance root growth in crops like corn, improving nutrient and water uptake.

### World Food Prize

- The World Food Prize is the **foremost international award** recognizing the accomplishments of individuals who have **advanced human development by improving the quality, quantity, or availability of food** in the world.
- The award was **established in 1986** by Nobel Peace Prize laureate **Dr. Norman E. Borlaug**.
  - ♦ It is often referred to as the **Nobel Prize for Food and Agriculture**.
- **The \$500,000 award** is formally presented at the **Laureate Award Ceremony** in mid-October, on or around World Food Day.

Source: TH

