

# NEXT IAS

## DAILY CURRENT AFFAIRS (DCA)

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### Table of Content

- From Welfare to Women-Led Development
- Tribal Groups Seek Dissolution of FRA and PESA Task Forces
- Shift in India's Deposit Landscape
- Base Year Revision of WPI and Introduction of PPIs
- The Need for Strengthening India's EV supply chains

#### News In Short

- Jal Sanchay Jan Bhagidari (JSJB) Initiative
- Mission Senehjori
- Right to be Forgotten
- Heatwaves Challenge India's Dairy Growth
- Meteor Explosion
- RudraM-II
- Summer Air Pollution and Ground-Level Ozone

## FROM WELFARE TO WOMEN-LED DEVELOPMENT

### Context

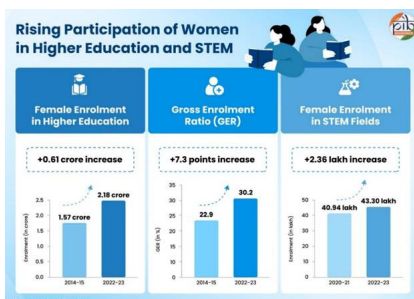
- Over the last decade, India has witnessed a paradigm shift from a welfare-oriented approach towards women to a model of women-led development.

### What is Women-Led Development?

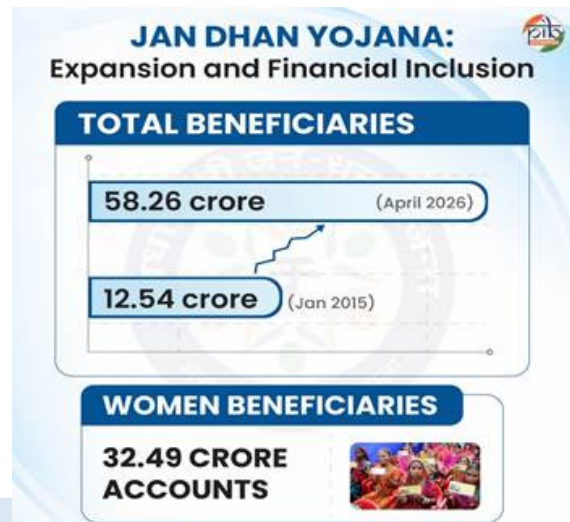
- Women-led development goes beyond welfare and empowerment by **placing women at the centre of economic growth**, governance, innovation, and decision-making.
- It views women not merely as beneficiaries of schemes but as drivers of social and economic transformation.

### Key Pillars of Women-Led Development

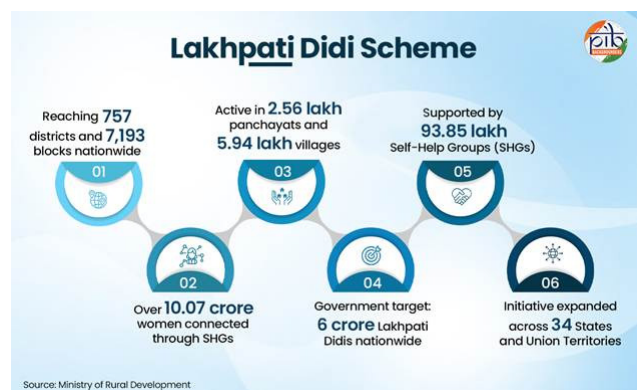
- Health, Nutrition and Maternal Care:** Schemes such as Pradhan Mantri Matru Vandana Yojana (PMMVY), Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA), Janani Suraksha Yojana (JSY), and Janani Shishu Suraksha Karyakram (JSSK) have strengthened maternal and child healthcare.
  - Maternal Mortality Ratio** declined from 130 per lakh live births (2014-15) to **88 (2021-23)**.
  - Institutional deliveries** increased from 79% (2015-16) to 90.6% (2023-24).
  - Mission Indradhanush and Poshan 2.0** have expanded immunisation and nutritional support.
- Education and Skill Development: Beti Bachao Beti Padhao** has improved awareness regarding the survival and education of the girl child.
  - Samagra Shiksha and Kasturba Gandhi Balika Vidyalyayas** have improved girls' enrolment and retention.
  - Schemes like **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**, and **NAVYA (Nurturing Aspirations through Vocational Training for Young Adolescent Girls)** are promoting future-ready skills among girls.



- Financial Inclusion and Entrepreneurship: Pradhan Mantri Jan Dhan Yojana** has brought millions of women into the formal banking system.
  - Sukanya Samridhi Yojana** has encouraged long-term financial planning for girls.
  - Women constitute a major share of beneficiaries under **Pradhan Mantri Mudra Yojana**.



- Digital and Economic Empowerment:** Women are increasingly participating in digital services, e-commerce, and technology-driven livelihoods.
  - Womaniya on Government e-Marketplace (GeM) and SHE-Mart** initiatives are expanding market access for women entrepreneurs.
  - NaMo Drone Didi** is enabling women to become technology-driven service providers in agriculture.



- Safety and Quality of Life: Pradhan Mantri Ujjwala Yojana** has reduced indoor air pollution through LPG access.
  - Jal Jeevan Mission** has reduced the burden of water collection and improved health outcomes.

- ◆ **Pradhan Mantri Awas Yojana** has strengthened women's ownership and housing security.
- **Leadership and Political Participation:** Women constituted 48.62% of the electorate in the 2024 General Elections.
  - ◆ **More than 14.5 lakh women** serve as elected representatives in Panchayati Raj Institutions.
  - ◆ **The Nari Shakti Vandan Adhiniyam, 2023** provides **33%** reservation for women in the Lok Sabha and State Legislative Assemblies.

### Significance of Women-Led Development

- Women-led development promotes **inclusive and sustainable economic growth** by expanding the productive workforce and strengthening economic participation.
- Greater participation of women in the labour market and entrepreneurial activities contributes to **innovation, job creation, and economic diversification**.
- Increased representation of women in governance and decision-making strengthens **democratic participation** and promotes more **inclusive policymaking**.
- Women-led development contributes directly to **achieving multiple Sustainable Development Goals**, including **gender equality, poverty reduction, quality education, good health, and inclusive growth**.

### Challenges to Realising Women-Led Development

- **Low Female Labour Force Participation:** Despite improvements, women's participation in the workforce remains below its potential due to structural and social barriers.
- **Persistent Gender Wage Gap:** Women continue to face wage disparities and unequal access to high-paying employment opportunities.
- **Digital Gender Divide:** Unequal access to digital technologies, internet connectivity, and digital skills continues to affect women, particularly in rural areas.
- **Burden of Unpaid Care Work:** Women disproportionately shoulder household and caregiving responsibilities, reducing their participation in paid employment.
- **Social and Cultural Constraints:** Deep-rooted patriarchal norms, gender stereotypes, and safety concerns continue to restrict women's mobility and opportunities.

- **Underrepresentation in Leadership Positions:** Women remain underrepresented in senior corporate, political, administrative, and institutional leadership roles despite recent progress.

### Way Ahead

- India must create more employment opportunities for **women in manufacturing, services, green economy sectors, and emerging technologies**.
- Expansion of **childcare facilities, crèches, and social security systems** can reduce the burden of unpaid care work.
- Effective **implementation of women's reservation and leadership development programmes** can deepen women's participation in governance.

### Concluding remarks

- India's shift from women-centric welfare to women-led development reflects a transformative development approach that places women at the centre of economic and social progress.
- As India moves towards **Viksit Bharat 2047**, strengthening women's participation, leadership, and empowerment will be crucial for achieving inclusive and sustainable development.

Source: PIB

## TRIBAL GROUPS SEEK DISSOLUTION OF FRA AND PESA TASK FORCES

### Context

- The constitution of **a task force in Chhattisgarh to fast-track the implementation of laws such as the Forest Rights Act, 2006 and the Panchayats (Extension to the Scheduled Areas) Act, 1996**, has led to controversy.

### About

- The task force was constituted to map potential areas for community forest resource rights claims under the FRA, reviewing pending claims, design strategies for PESA-related matters, and assist district authorities with implementation of the FRA.
- Critics argue that these task forces **subvert the basic democratic structure of implementation of PESA and FRA as the creation of task forces moves decision-making power** away from village institutions and towards administrative and technical mechanisms.

- ♦ Adivasi and forest rights groups have **called for the dissolution of task forces on FRA and PESA in Chhattisgarh and Madhya Pradesh.**

### Forest Rights Act

- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (Forest Rights Act or FRA) was introduced **to recognize the rights of forest-dwelling communities**, including Scheduled Tribes, over forest resources that they have been traditionally using.

### Major Highlights:

- **Recognition of Rights:** It includes individual and community rights such as Self-cultivation, Habitation, Grazing, Fishing and access to Water bodies in forests.
  - ♦ It also includes **Habitat Rights** for PVTGs, Traditional Seasonal Resource access of Nomadic and Pastoral communities, access to biodiversity, **community right to intellectual property and traditional knowledge.**
- **Allocation of Forest Land:** It also provides rights to allocation of forest land for **developmental purposes** to fulfil basic infrastructural needs of the community.
  - ♦ In conjunction with the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Settlement Act, 2013 **FRA protects the tribal population from eviction without rehabilitation and settlement.**
- **Role of Gram Sabha:** The Act further enjoins upon the Gram Sabha and rights holders the **responsibility of conservation and protection of forests.**
  - ♦ The Gram Sabha is also a highly empowered body under the Act, enabling the tribal population to have a decisive say in the **determination of local policies and schemes impacting them.**

### What is the PESA Act, 1996?

- PESA Act, 1996 stands for the Provisions of the **Panchayats (Extension to Scheduled Areas) Act, 1996.**
- It is a law enacted by the Parliament to extend the provisions of **Part IX** of the Constitution relating to the **Panchayats to the 5th Scheduled Areas** in a slightly modified form.

- Under the **Fifth Schedule** of the Constitution, regions with predominantly tribal populations are categorized as '**Scheduled Areas**', a territorial designation that recognises the **customary rights of the Scheduled Tribes (ST).**

### How has the PESA Act boosted forest conservation?

- **Control Over Natural Resources:** The Act grants tribal communities control over the **management and utilization of natural resources**, such as land, water, and forests.
- **Decentralized Decision-Making:** The Act decentralizes decision-making to the Gram Sabha and Panchayats, enabling more localized and contextually relevant governance.
- **Land Rights and Preventing Alienation:** By requiring that any transfer of land in Scheduled Areas must be approved by the Gram Sabha, the PESA Act provides legal safeguards against the alienation of tribal lands.

### Way Ahead

- **Strengthen Gram Sabha-Centric Governance:** Ensure that implementation of the FRA, 2006 and PESA, 1996 remains rooted in the authority of Gram Sabhas, as envisaged by the laws. Task forces should play a facilitative role rather than a decision-making role.
- **Institutionalize Participatory Decision-Making:** Include representatives of tribal communities, traditional forest dwellers, women's groups, and civil society organizations in advisory and monitoring mechanisms.
- **Enhance Transparency and Accountability:** Publish regular reports on claims processed, rights recognized, and implementation status.
  - ♦ Establish independent grievance redressal mechanisms accessible to tribal communities.
- **Adopt Cooperative Federal and Constitutional Approaches:** States should frame rules and implementation strategies consistent with constitutional protections under the Fifth Schedule and the spirit of tribal self-governance.

### Conclusion

- Effective implementation of FRA and PESA requires balancing administrative efficiency with constitutional principles of tribal self-governance.
- Strengthening Gram Sabhas, ensuring community participation, and making task forces accountable to local institutions can help achieve both development and democratic empowerment in Scheduled Areas.

Source: TH

## SHIFT IN INDIA'S DEPOSIT LANDSCAPE

### Context

- According to the latest report of the Reserve Bank of India, Indian depositors are increasingly shifting their funds from low-interest savings accounts to higher-yield fixed deposits (FDs).

### Key Trends Highlighted by RBI

- **Declining Share of Savings Deposits:** Savings deposits accounted for only 28.7% of aggregate bank deposits in March 2026, down significantly from 34.6% in March 2022.
  - ♦ Demand deposits (savings and current accounts) stood at ₹31.65 lakh crore as of May 2026.
- **Rising Popularity of Fixed Deposits:** Term deposits increased their share from 55.2% to 61.6% over four years and reached ₹225.23 lakh crore by May 2026.
  - ♦ Depositors are increasingly locking funds for longer durations to secure higher returns.
- **Preference for Medium-Term Deposits:** The share of deposits with maturity between 1 and 3 years increased from 50.4% in 2022 to 69.8% in 2026.
  - ♦ Deposits with maturity below one year fell from 16.7% to 8.8%.
- **Dominance of Large Depositors:** Deposits of ₹1 crore and above accounted for 46.3% of total term deposits as of March 2026.
- **Household Savings Behaviour:** Household savings continue to provide the foundation of India's banking deposit base, accounting for **59.3%** of total bank deposits at the end of March 2026.
- **Diversification Towards Other Financial Assets:** Many households are increasingly investing in mutual funds, equities, and other market-linked instruments to seek higher returns.
  - ♦ The growing diversification of savings reflects increasing financial awareness and participation in capital markets.

### Why Are Indians Preferring Fixed Deposits?

- **Low Interest Rates on Savings Accounts:** Most major banks offer only **2.5–3% interest** on savings accounts. In contrast, one- and two-year FDs offer around **6.25–6.45% returns**.
- **Negative Real Returns on Savings Deposits:** When savings account interest rates remain below inflation, the real value of money declines.

- ♦ With retail inflation around **3.48%**, a savings account yielding **2.5%** generates a negative real return.
- **Banking Sector Priorities:** Banks have been offering **attractive FD rates** to mobilize resources and fund credit growth, causing depositors to increasingly lock in medium-term funds (one to three years) to secure higher yields.
- **Easy Accessibility:** With the rise of net banking and mobile applications, anyone can open an FD with just a few clicks.
- **Deposit Insurance:** FDs are covered by the **DICGC (Deposit Insurance and Credit Guarantee Corporation)**, which insures deposits up to **₹5 lakhs** per depositor per bank, adding a layer of security.
- **Convenient Liquidity & Loans:** Investors can opt for tenures ranging from just **7 days to 10 years**.
  - ♦ If immediate cash is required, investors can break the FD or take a loan/overdraft against the FD without losing all the benefits.

### Implications for the Indian Economy

- **Positive Implications:** Higher fixed deposit mobilisation strengthens the resource base available for bank lending.
  - ♦ **Greater household participation** in financial savings contributes to financial sector deepening.
  - ♦ The shift towards interest-bearing instruments promotes **more efficient allocation of savings** within the economy.
- **Emerging Concerns:** Higher funding costs may **exert pressure on banks' profitability** and lending rates.
  - ♦ The **declining share of Regional Rural Banks** in deposit mobilisation indicates increasing concentration of deposits in larger commercial banks.

### Way Ahead

- Policymakers should encourage greater diversification of household savings across deposits, pensions, insurance, and capital market instruments to strengthen long-term financial security.
- Banks should develop flexible deposit products that combine higher returns with easier access to funds during emergencies.

- The growing shift towards fixed deposits should be complemented by deeper financial sector reforms that channel household savings into productive investments for economic growth.

#### Concluding remarks

- The shift from savings accounts to fixed deposits reflects households' preference for higher and more stable returns amid low savings account interest rates and inflation concerns.
- While market-linked SIPs are gaining popularity, the safety, predictability, and assured returns offered by fixed deposits continue to make them a cornerstone of Indian saving habits.

Source: IE

## BASE YEAR REVISION OF WPI AND INTRODUCTION OF PPIS

#### Context

- The Government of India has approved the revision of the base year of the **Wholesale Price Index (WPI)** from 2011–12 to **2022–23**.

#### What is the Wholesale Price Index (WPI)?

- WPI measures the **average change in prices of goods** at the **wholesale or producer level** before they reach consumers.
- It is compiled and released by the **Office of Economic Adviser (OEA), Department for Promotion of Industry and Internal Trade (DPIIT)**.
- WPI is widely used in;
  - ♦ Price escalation clauses in contracts.
  - ♦ Industrial and infrastructure projects.
  - ♦ Economic analysis and policy formulation.

#### Major Changes in the Revised WPI

- **Increased number of Items:** The total number of items has increased from **697 to 957**.
- **Inclusion of Renewable Energy:** Solar power and wind energy have been included under the Electricity group.
  - ♦ **Nuclear electricity** has also been added to the basket.
- **Reorganization of Energy Categories:** Crude petroleum and natural gas have been shifted from the "Primary Articles" category to the **"Fuel and Power"** category.
- **Improved Methodology for Derivation of Weights:** Gross Value of Output (GVO) has been

used for preparing weights for WPI (2022-23) as compared to Net Traded Value i.e. **GVO + Imports – Exports**, used in **WPI 2011-12 series**.

- ♦ The weights based on GVO reflect the economic significance of commodities in a better way from the producer's perspective, as they represent domestic production.
- **Improved Method for Imputing Missing Price Data: 'Targeted Mean Imputation'** method has been used, in place of 'Carry-forward' method being used in the existing series of WPI.

#### Introduction of Producer Price Indices (PPIs) in India

- The government would also release new series of **Output Producer Price Index (OPPI), Input Producer Price Index (IPPI), and Service Producer Price Index (Service PPI)** of seven services, viz., Banking, Securities Transaction, Insurance, Management of Pension Funds, Railways, Air (Passenger), and Telecom with base year 2022-23.
- **Output Producer Price Index (OPPI):** OPPI measures the average change over time in the prices that producers receive for the goods and services they sell.
  - ♦ It captures price movements at the producer or factory gate level before taxes, trade margins, and transportation costs are added.
- **Input Producer Price Index (IPPI):** IPPI measures the average change in prices paid by producers for inputs such as raw materials, intermediate goods, energy, and other inputs used in the production process.
  - ♦ It reflects the cost pressures faced by producers.
- **Service Producer Price Index (Service PPI):** Service PPI measures the average change over time in the prices received by service providers for the services they offer.
  - ♦ It tracks inflation in the services sector from the producer's perspective.

Source: PIB

## THE NEED FOR STRENGTHENING INDIA'S EV SUPPLY CHAINS

#### Context

- **As EV adoption gathers pace in India**, there is a greater need to focus on reducing **vulnerability to external shocks**.

**About**

- Around **2.5 million vehicles were sold in FY26**, a significant increase from FY25.
- As the sector scales, India is **moving away from imported fossil fuels** while becoming increasingly **dependent on imported lithium-ion batteries**.
- **EV growth must now be judged by three additional metrics:** supply chain resilience, strategic autonomy, and long-term sustainability.

**What are Electric Vehicles?**

- An electric vehicle (EV) operates on an **electric motor**, instead of an internal-combustion engine that generates power by burning a mix of fuel and gases.
  - ♦ **EVs store electricity in large, rechargeable battery packs** and are plugged into an external power source to recharge
- Therefore, such a vehicle is seen as a possible **replacement for current-generation automobiles** in order to address the issue of rising pollution, global warming, depleting natural resources, etc.

**India's Domestic Cell Manufacturing**

- India's domestic cell manufacturing is still far below the scale needed to alter import dependence meaningfully.
- **Under the ACC Battery Production Linked Incentive scheme**, 40 GWh of capacity has been awarded, but **only about 1 GWh has been installed so far**.
- Meanwhile, passenger EVs sold in India are sourcing batteries from **14 global manufacturers, with 7,987 MWh imported in 2025**.
  - ♦ A significant share came from **Chinese manufacturers**, highlighting that increasing EV sales are tightly correlated with increasing imports from China.

**Concerns**

- **Dependence on Single Country:** Battery supply is increasingly exposed to a single-country ecosystem that is shaped by policy, geopolitics, and industrial strategy outside India's control.
  - ♦ Several developments in China are influencing pricing and availability, like tighter technology restrictions, prioritisation of domestic demand, withdrawal of VAT exemptions on battery exports.

- **Geopolitical Situation:** The West Asia conflict has compounded the pressure through higher raw material costs, elevated manufacturing expenses in China, and rising transport and risk premiums.
- **Impact on Indian Market:** In a market as price-sensitive as India's they can confine EVs to premium segments and place national adoption targets at risk.
  - ♦ If the situation persists and **OEMs (original equipment manufacturers)** are forced to pass on higher costs to consumers.

**Government Initiatives**

- **Production Linked Incentive (PLI) Scheme for Automobile and Auto Component Industry in India (PLI-Auto):** Launched in 2021, the scheme aims to boost domestic manufacturing of Advanced Automotive Technologies (AAT).
  - ♦ A key mandate is that companies must ensure at least 50% domestic value addition (DVA) to qualify for incentives.
- **Scheme for Promotion of Manufacturing of Electric Passenger Cars in India 2024 (SPMEPCI):** To draw global automakers to invest, the scheme grants approved applicants a five-year window to import Completely Built-in Units (CBUs) of electric four-wheelers (e-4W) valued at a minimum CIF (Cost, Insurance, and Freight) of USD 35,000 at a significantly reduced customs duty of 15%.
- **PLI Scheme for Advanced Chemistry Cell (ACC):** It was approved in 2021 for manufacturing of ACC in the country with a budgetary outlay of Rs. 18,100 crore.
  - ♦ The scheme aims to establish a competitive domestic manufacturing ecosystem for 50 GWh of ACC batteries.
- **Rare Earth Permanent Magnet (REPM) Scheme:** It is introduced to develop domestic production of rare-earth permanent magnets used in EV motors.
  - ♦ Reduces dependence on imports of critical minerals and strategic components.
  - ♦ Strengthens upstream supply chains for electric mobility.

**Way Ahead**

- Indian manufacturers should begin type-testing vehicles across emerging chemistries, including **sodium-ion batteries**.

- ♦ Sodium-ion is not yet a full substitute for lithium-ion across all use cases, but it could serve as a meaningful hedge as production scales domestically.
- India's path forward lies in building a **structured 'EV supply chain alliance'** with trusted partners, one that spans minerals, manufacturing, technology, and standards.
  - ♦ Such an alliance would distribute risk across geographies, deepen domestic capability over time, and ensure **that no single external disruption can stall India's electrification agenda.**

### Conclusion

- India has already demonstrated that it can create demand for clean mobility. The next test is whether **it can build the industrial depth** to sustain that demand without becoming dependent on a single external bottleneck.
- The goal should not be merely to electrify faster, but to electrify intelligently, securely, and on terms that strengthen India's long-term strategic and economic autonomy.

Source: TH

## NEWS IN SHORT

### JAL SANCHAY JAN BHAGIDARI (JSJB) INITIATIVE

#### Context

- Union Jal Shakti Minister said that the creation of **over 1.5 crore artificial groundwater recharge and storage works** have been reported across the country under the Centre's **Jal Sanchay Jan Bhagidari (JSJB) initiative.**

#### About Jal Sanchay Jan Bhagidari (JSJB) initiative

- It is a nationwide community-driven water conservation initiative launched by the **Ministry of Jal Shakti in 2024** under the umbrella of the **Jal Shakti Abhiyan: Catch the Rain (JSA: CTR) campaign.**
- **Aim:** To transform water conservation into a mass movement through active public participation, local institutions, industries, and government agencies.
- **It is driven by the 3Cs mantra**—Community, corporate social responsibility (CSR), and cost; it adopts an inclusive model that promotes long-term water security and resilience against water stress.

- **Under this initiative, States are divided into five zones,** and the districts are encouraged to **construct a minimum of 10,000 artificial recharge** and storage structures.
- **The top-performing districts are being awarded** Rs. 2 crore each in Category 1. Districts in Categories 2 and 3 are being awarded Rs. 1 crore each and Rs. 25 lakh each, respectively.

Source: IE

### MISSION SENEHJORI

#### Context

- Union Minister for Development of North Eastern Region (MDoNER) has launched **Mission Senehjori**, a flagship initiative to transform **Assam's Muga silk sector into a globally competitive luxury textile ecosystem.**

#### About

- The mission aims to strengthen host-plant cultivation, modernise reeling infrastructure, promoting Farmer Producer Organisations (FPOs) & expanding global market access under the unified "**Senehjori**" brand.
- The initiative is being implemented in collaboration with the Government of Assam, the **Central Silk Board**, the **Ministry of Textiles**, and other central agencies.

#### About Central Silk Board

- It is a statutory body under the Union Ministry of Textiles, established by the Central Silk Board Act, 1948 (later amended as Central Silk Board (Amendment) Act, 2006).
- It is responsible for formulating policies and implementing programs for the development of sericulture and silk industry.
- Headquarter: Bengaluru, Karnataka

#### Sericulture Basics

- Sericulture involves cultivating silkworms (primarily *Bombyx mori* for mulberry silk) that feed on leaves like mulberry, oak, castor, and arjun to spin cocoons.
- These are processed into yarn and fabric, blending agriculture and industry.
- India is the **only country that produces all 4 major varieties of natural silk.**

- ◆ Mulberry Silk (70% of India's total output); Tasar (Tussar) Silk (Derived from wild silkworms); Eri Silk (aka 'Ahimsa Silk'); and Muga Silk (A Geographical Indication (GI) product).
- ◆ Assam produces around **90% of the world's Muga silk**
- India is today the second-largest producer of silk globally, accounting for nearly 25% of global silk output, next only to China.

Source: DDNews

## RIGHT TO BE FORGOTTEN

### Context

- The Delhi High Court held that the **Right to be Forgotten** is an important part of the fundamental right to privacy under **Article 21 of the Constitution**.

### Position of the Right to be Forgotten in India

- India does not yet have a specific law on the Right to be Forgotten.
- However, the **Personal Data Protection Bill, 2019** and several court judgments have recognised this right.
- The **Supreme Court's K.S. Puttaswamy** judgment (2017) recognised informational privacy as part of the right to privacy.
- Later judgments by the **Delhi** and **Orissa High Courts** further expanded and discussed this right.

Source: TH

## HEATWAVES CHALLENGE INDIA'S DAIRY GROWTH

### Context

- The increasing frequency of extreme heat events in India has raised concerns about the long-term sustainability of the country's dairy sector.

### Dairy Sector of India

- **Global Leadership:** India is the **world's largest milk producer**, contributing **24.76%** of global milk output.
- **Production Growth:** Milk production rose from 146.31 million tonnes in 2014-15 to **239.30 million tonnes** in 2023-24.
- **Economic Contribution:** Dairy is India's single largest agricultural commodity, contributing **5% to GDP** and employing over 8 crore farmers.

- **Growth Performance:** Livestock sector grew at a CAGR of 7.9% (2014-15 to 2020-21), outpacing the agriculture sector.
- **Per Capita Availability:** Rose to **471 g/day in 2023-24**, substantially above the world average of 322 g/day.
- **Top Producing states:** Uttar Pradesh, Rajasthan, Madhya Pradesh.

### How Heat Waves Affect Dairy Production?

- **Declining Milk Yield:** Heat stress reduces feed intake, lowering the availability of nutrients required for milk production.
  - ◆ Livestock expend more energy on regulating body temperature, leaving less energy for milk synthesis.
- **Reproductive Stress:** Rising temperatures adversely affect fertility and conception rates. Heat stress increases the incidence of miscarriages and premature births.
- **Deterioration in Milk Quality:** Extreme heat lowers milk fat and solid-not-fat (SNF) content. Since milk procurement prices are linked to fat and solid content, farmers experience direct income losses.

Source: ET

## METEOR EXPLOSION

### Context

- NASA has confirmed that a **bright fireball meteor** exploded in the sky releasing the equivalent energy of about 300 tons of TNT and generating a sonic boom heard across the U.S.

### About

- A **fireball** is another term for a **very bright meteor**, generally brighter than **magnitude -4**, which is about the same magnitude of the **planet Venus** in the morning or evening sky.
- A **bolide** is a special type of fireball which explodes in a bright terminal flash at its end, often with visible fragmentation.
- **Several thousand meteors** of fireball magnitude occur in the Earth's atmosphere each day.
  - ◆ The vast majority of these, however, occur over the oceans and uninhabited regions.

### Meteors, Meteoroids, Meteorites

- A **meteoroid** is a small rock or particle traveling through space, usually a piece of a comet or asteroid.

- **A meteor** refers to the streak of light in the sky that appears when a meteoroid enters Earth's atmosphere and disintegrates.
- **A meteor shower** occurs when meteoroids that have a common origin (like debris from a comet) and very similar orbits enter the atmosphere.
- **A meteorite** is a piece of space rock that survives the trip through the atmosphere and lands on the ground.

Source: TH

## RUDRAM-II

### Context

- India successfully flight-tested the indigenous **RudraM-II Air-to-Surface Missile**, strengthening its indigenous defence and precision-strike capabilities.

### About

- RudraM-II is an **air-to-surface missile** developed by the **Research Centre Imarat (RCI), Hyderabad**, the nodal DRDO laboratory.
- It uses a **hybrid navigation system** combining an inertial navigation system, GPS and a sophisticated passive homing head that detects radio frequency emissions across a wide frequency band.
- It can reach a peak speed of **Mach 5.5**, strike targets at a range of approximately **300 km**, and carry a warhead weighing up to **200 kg**.
- It can be deployed from aircraft like **Sukhois** flying at altitudes ranging from **3 to 15 km**.
- The new missile will act as a key force multiplier and intend to eventually replace the older **Russian-origin Kh-31 anti-radiation missiles** currently in service.

### Do You Know?

- **RudraM-I**, the earlier variant in the RudraM series, has a range of **100–250 km** and can attain speeds of up to **Mach 2**.

Source: TOI

## SUMMER AIR POLLUTION AND GROUND-LEVEL OZONE

### Context

- Several Indian cities witnessed severe summer air pollution in 2026, leading to the reimposition of Stage-I restrictions under GRAP in Delhi.

### Summer Causes Ground-Level Ozone

- Ground-level ozone is a **secondary pollutant** and is not released directly into the air.
- It forms when **Nitrogen Oxides (NOx)** from vehicles and **Volatile Organic Compounds (VOCs)** from industries, paints, solvents, and fuel emissions react under strong sunlight.
- **Hot summer conditions and heatwaves accelerate** this reaction, causing high ozone levels during daytime.
- Ozone and particulate matter can cause serious respiratory illnesses, especially among children, the elderly, and people with lung diseases.

### Major Causes of Summer Air Pollution

- **Regional Dust Storms (The Loo):** Hot and dry winds carry desert dust from the Thar Desert and West Asia, sharply increasing PM10 levels.
- **Localized Thunderstorms (Andhi):** Local dust storms caused by thunderstorms lift loose soil into urban areas.
- **Urban Heat Island Effect:** Concrete surfaces and loss of green cover increase local temperatures and speed up smog formation.
- **Construction Activities:** Dust from construction and demolition rises after winter restrictions are relaxed.
- **Human Activities:** Vehicle emissions, industries, and waste burning continuously release pollutants.

Source: TH

