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VAISHNA BISWAS

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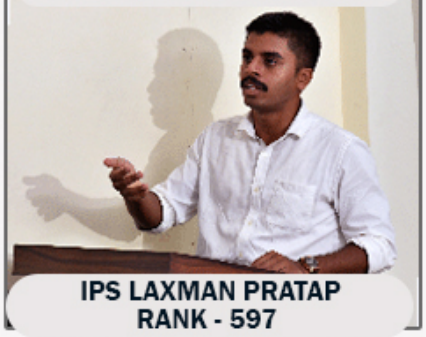
OUR UPSC TOPPERS 2023



IPS LAXMAN PRATAP
RANK - 597
FORMER ASST. COMMANDANT IN BSF
CITY COLLEGE KOLKATA

OUR UPSC TOPPERS 2024

IRS SARLA JAKHER
AIR 593
CITY COLLEGE KOLKATA

IRS TANMAY
AIR 346
IIT KHARAGPUR

DAILY CURATED NEWS | EXAM ORIENTED ANALYSIS | SMART NOTES & INFOGRAPHICS | BOOST YOUR PREPARATION

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DAILY CURRENT AFFAIRS

1. A Hidden Eight-Note Alphabet Makes Up Every Bird Song in the World, Pg II
2. The Two Balance Sheets Behind Every E-Waste Decision
3. Clean Slate Doctrine
4. Scheme of Venture Capital Fund for Scheduled Castes
5. Semicon 2.0: How India Aims to Build a Domestic Chip Design Ecosystem

1.A Hidden Eight-Note Alphabet Makes Up Every Bird Song in the World, Pg II

Source: The Hindu

Why in News?

A study by French and U.S. researchers has identified eight fundamental acoustic motifs that form the building blocks of bird songs across thousands of passerine species.

Key Highlights

- Researchers analysed over 100,000 bird-song recordings from more than 3,000 passerine species.
- Machine learning was used to identify eight recurring acoustic motifs.
- The eight motifs include:
    - Three types of trills
    - Three types of whistles
    - Atonal chaotic notes
    - Harmonic stacks
- The study used recordings from Xeno-canto, a citizen-science wildlife audio repository.
- Bird-song patterns are influenced by environmental conditions, evolutionary history, social organisation, morphology and sexual selection.
- Birds use different combinations of motifs depending on ecological and social pressures.

How Were Bird Songs Studied?

- Researchers decomposed complex bird songs into their basic acoustic components.
- Spectrograms were used to represent sound frequencies over time.
- Modulation Power Spectrum (MPS) provided a broader representation of acoustic characteristics.

- Machine-learning algorithms processed the large dataset and identified recurring patterns.
- On average, birds use about five of the eight identified motifs.

Factors Shaping Bird Songs

- Environmental conditions influence how effectively sounds can travel through different habitats.
- Evolutionary history determines the inherited characteristics of bird communication.
- Social organisation affects the complexity and type of signals used.
- Morphology influences the ability of birds to produce particular sounds.
- Sexual selection can favour more complex and elaborate songs.

Adaptation to Distance and Habitat

- Birds communicating over long distances tend to use simpler motifs such as flat whistles and slow trills.
- Simpler sounds can travel more effectively through challenging environments.
- Close-range communication allows birds to use faster and more complex motifs.
- Smaller bird species also tend to use more complex motifs.
- Species experiencing stronger sexual selection generally exhibit more complex songs.

Tropical vs Temperate Birds

- Tropical rainforest birds tend to favour simpler songs that can travel efficiently through dense vegetation.
- Temperate birds tend to use more complex and information-rich songs.
- Smaller territories and shorter breeding seasons in temperate regions may favour more information-rich communication.
- This demonstrates a trade-off between the amount of information encoded in a song and the ability of the signal to travel effectively.

Significance

- The study suggests that despite enormous diversity in bird songs, their acoustic structure may be based on a limited set of fundamental motifs.
- It demonstrates how environmental constraints can shape animal communication.

- The findings provide insights into the evolution and adaptation of communication systems.
- Machine learning can help analyse very large biodiversity datasets and identify patterns that may not be apparent through conventional observation.

UPSC Prelims Question

Q1. With reference to the study of bird songs, consider the following statements:

1. Machine learning can be used to identify recurring acoustic patterns in large collections of bird-song recordings.
2. Spectrograms can represent variations in sound frequency over time.
3. Sexual selection can influence the complexity of bird songs.
4. All bird species use the same combination of acoustic motifs irrespective of their habitat.

Which of the statements given above are correct?

(a) 1, 2 and 3 only
(b) 1 and 4 only
(c) 2, 3 and 4 only
(d) 1, 2, 3 and 4

Answer: (a)

UPSC Mains Question

Q. How do environmental and evolutionary pressures shape animal communication systems? Discuss with reference to recent findings on the acoustic structure of bird songs. (150 words)

2.The Two Balance Sheets Behind Every E-Waste Decision

Source: IE

Why in News?

India needs to move beyond short-term, lowest-cost approaches to e-waste management and recognise the long-term strategic value of recovering critical minerals through urban mining.

What is E-Waste?

- E-waste refers to discarded electrical and electronic equipment.

- It contains valuable metals such as copper, aluminium, gold, silver and palladium.
- These materials are important for modern digital economies.

Urban Mining

- Urban mining is the recovery of valuable materials from discarded electronic products.
- It can reduce dependence on extraction of virgin minerals.
- It can strengthen domestic resource security and reduce import dependence.

The Concept of Urban Mining

Unlike traditional mining that extracts raw ore from the earth, **urban mining** focuses on recovering materials from anthropogenic (man-made) stocks. This includes end-of-life products like smartphones, laptops, cables, and even structural steel from demolished buildings.

Why It Matters (The "Strategic" Edge)

- **Resource Efficiency:** Traditional gold mining typically yields 1–5 grams of gold per tonne of ore. In contrast, one tonne of high-grade **circuit boards** can contain **150 to 400 grams of gold**.
- **Critical Mineral Security:** India is heavily dependent on imports for minerals like **Lithium, Cobalt, and Nickel**—essential for the EV revolution. Urban mining offers a domestic supply of these "tech-metals," reducing vulnerability to global supply chain shocks.
- **Environmental Impact:** Secondary production (recycling) uses significantly less energy than primary extraction. For example, recycling aluminium saves about **95% of the energy** required to produce it from bauxite.

India's Regulatory Landscape (2025-26 Status)

India has significantly tightened its waste management framework to institutionalize urban mining:

1. **E-Waste (Management) Rules, 2022:** These rules expanded the scope from 21 to **106 electrical and electronic equipment (EEE)** items. They mandate **Extended Producer Responsibility (EPR)** targets, requiring producers to ensure specific recycling percentages.
2. **EPR Certificate Trading:** Since 2024, the Central Pollution Control Board (CPCB) has supervised platforms for trading EPR certificates, allowing producers to meet their targets by buying credits from registered recyclers.
3. **Critical Mineral Incentive Scheme (2025):** The Union Cabinet approved a **₹1,500 crore incentive scheme** (2025–2031) specifically to build domestic capacity for separating and producing critical minerals from secondary sources.

Two Balance Sheets of E-Waste Decisions

Financial Balance Sheet	Strategic Balance Sheet

Focuses on immediate financial cost.	Considers long-term national value.
Often favours the lowest visible procurement cost.	Considers resource security and supply-chain resilience.
May discourage technologically advanced recycling due to higher initial costs.	Supports advanced recycling and recovery of critical minerals.
Emphasises short-term savings.	Includes environmental sustainability and domestic industrial capability.

Challenges in E-Waste Recycling

- Advanced e-waste recycling requires sophisticated technologies.
- Secure data destruction is necessary for discarded IT equipment.
- Environmentally compliant processing can increase initial costs.
- Lowest-cost procurement practices can discourage investment in advanced recycling.
- Failure to recycle effectively can increase import dependence and environmental liabilities.
- Poor handling of discarded IT equipment can also create cybersecurity risks.

Way Forward

- Adopt **life-cycle costing** instead of focusing only on initial purchase price.
- Promote **value-based procurement** that considers long-term public value.
- Strengthen the **Extended Producer Responsibility (EPR)** framework.
- Use EPR to incentivise traceability, recovery efficiency and technological capability.
- Treat e-waste recycling as a strategic capability for resource security and supply-chain resilience.
- Integrate environmental, economic and national strategic considerations into procurement decisions.

UPSC Prelims Question

Q. With reference to e-waste management, consider the following statements:

1. Urban mining involves recovering valuable materials from discarded electronic equipment.
2. E-waste can contain metals such as copper, gold, silver and palladium.

3. Life-cycle costing focuses only on the initial procurement price of an electronic product.
4. Extended Producer Responsibility can be used to promote traceability and recovery efficiency in e-waste recycling.

Which of the statements given above are correct?

(a) 1, 2 and 4 only
(b) 1 and 3 only
(c) 2, 3 and 4 only
(d) 1, 2, 3 and 4

Answer: (a) 1, 2 and 4 only

UPSC Mains Question

Q. "E-waste management should be viewed not merely as an environmental obligation but as a strategic resource-security measure." Discuss in the context of urban mining, critical minerals and Extended Producer Responsibility in India.

3.Clean Slate Doctrine

Source: The Hindu

Why in News?

The Supreme Court's recent judgment in Ujaas Energy clarified that the Clean Slate Doctrine is primarily directed at extinguishing claims against a corporate debtor after resolution, but it does not necessarily erase every legal consequence arising from the facts underlying those claims.

What is the Clean Slate Doctrine?

- The Clean Slate Doctrine is a key principle associated with the **Insolvency and Bankruptcy Code (IBC), 2016**.
- It provides that after successful completion of the **Corporate Insolvency Resolution Process (CIRP)** and approval of a resolution plan, the successful resolution applicant should acquire the corporate debtor without past liabilities that are not included in the approved plan.
- It gives the corporate debtor a fresh start, free from the financial baggage of its past.
- The principle is primarily associated with **Section 31 of the IBC, 2016**.

Key Supreme Court Judgments

Judgment	Key Principle
Committee of Creditors of Essar Steel India Ltd. v. Satish Kumar Gupta (2020)	Once a resolution plan is approved by the NCLT, claims not included in the plan are extinguished.
Arun Kumar Jagatramka v. Jindal Steel and Power Ltd. (2021)	Approval of a resolution plan provides the successful resolution applicant a clean slate to operate the business.
Ghanashyam Mishra and Sons Pvt. Ltd. v. Edelweiss Asset Reconstruction Co. Ltd. (2021)	Claims not forming part of the approved resolution plan stand extinguished; this also applies to government authorities.
Ebix Singapore Pvt. Ltd. v. CoC of Educomp Solutions Ltd. (2021)	Stakeholders who did not directly participate in CIRP are also bound by an approved resolution plan.
Vaibhav Goel and Anr. v. DCIT and Anr. (2025)	Belated claims cannot be introduced after approval of the resolution plan by the NCLT.

Significance

- Provides certainty to the successful resolution applicant.
- Prevents revival of old claims after completion of insolvency proceedings.
- Encourages potential investors to participate in resolution processes.
- Ensures that all claims are dealt with through the insolvency resolution framework.
- However, the doctrine does not necessarily mean that every legal consequence arising from the corporate debtor's past conduct automatically disappears.

UPSC Prelims Question

Q. With reference to the Clean Slate Doctrine under the Insolvency and Bankruptcy Code, 2016, consider the following statements:

1. It is primarily associated with Section 31 of the Insolvency and Bankruptcy Code, 2016.
2. Claims not included in an approved resolution plan are generally extinguished.
3. Only stakeholders who participated directly in the CIRP are bound by the approved resolution plan.

4. The doctrine seeks to provide the successful resolution applicant freedom from past liabilities not included in the approved resolution plan.

Which of the statements given above are correct?

(a) 1, 2 and 4 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2, 3 and 4

Answer: (a) 1, 2 and 4 only

UPSC Mains Question

Q. Explain the Clean Slate Doctrine under the Insolvency and Bankruptcy Code, 2016. How does it balance the need for a fresh start for resolution applicants with the interests of various stakeholders?

4.Scheme of Venture Capital Fund for Scheduled Castes

Source: PIB

Why in News?

The **Scheme of Venture Capital Fund for Scheduled Castes (VCF-SC)** is supporting SC entrepreneurs in establishing **technology-driven enterprises**, generating employment and promoting economic self-reliance.

Key Facts

- **Launched:** 2014-15.
- **Ministry:** Ministry of Social Justice and Empowerment.
- **Purpose:** To provide **concessional finance** to entrepreneurs belonging to the Scheduled Castes.
- **Priority: Women and disabled SC entrepreneurs**.
- **Initial corpus:** ₹200 crore, with additional contributions every year.
- The fund is registered as an **Alternative Investment Fund (AIF)** under **SEBI's AIF Regulations, 2012**.
- **Government of India** acts as the **Anchor Investor**.
- **IFCI Ltd.** is the **Sponsor Investor**.
- Financial assistance ranges from **₹10 lakh to ₹15 crore**.

Funding Pattern

Financial Assistance	Funding Pattern
Up to ₹5 crore	Maximum **75%** of project cost by the Fund; **25%** by promoters
Above ₹5 crore	Maximum **50%** by the Fund; at least **25%** by banks/other institutions; **25%** by promoters

Objectives

- Promote entrepreneurship among SC communities, particularly in innovation and growth-oriented sectors.
- Provide concessional finance for viable and profitable businesses.
- Promote financial inclusion of SC entrepreneurs.
- Facilitate the economic development of SC communities.
- Generate direct and indirect employment for the SC population.
- Encourage creation of wealth and value for society.

5.Semicon 2.0: How India Aims to Build a Domestic Chip Design Ecosystem

Source: The Hindu

Why in News?

The Centre has launched **Semicon 2.0**, with an outlay of **₹1.27 lakh crore**, to develop India's **domestic semiconductor and chip-design ecosystem**, with a strong focus on Indian-owned intellectual property and strategic technologies.

Key Facts

- **Primary focus:** Chip design and development of **Indian-owned semiconductor IP**.
- It aims to strengthen India's **fabless semiconductor companies**, which design chips but outsource their manufacturing.
- The programme has dedicated tracks for:
    - **Strategic semiconductor technologies** for national security and critical infrastructure.
    - **Commercial chip products** with market potential.

- Start-ups and MSMEs can receive **milestone-linked seed funding up to ₹15 crore or 50% of project cost**.
- Support includes access to:
    - **Electronic Design Automation (EDA) tools**
    - **Multi-Project Wafer (MPW) fabrication services**
    - **IP cores**

Major Incentives

- Deployment-linked incentive: 9% of net sales for five years to encourage market adoption of newly designed Indian chips.
- Capital expenditure support: 30–40% for eligible semiconductor manufacturing facilities.
- Large silicon wafer fabs: Eligible for up to 40% capital expenditure support.
- Production-Linked Incentive (PLI): Support for manufacturers of semiconductor-related equipment.
- The scheme also supports the wider semiconductor ecosystem, including R&D facilities, wafer manufacturing, photomasks, chemicals and testing facilities.

Significance

- India has a large pool of semiconductor design engineers, but comparatively limited Indian-owned semiconductor intellectual property.
- Semicon 2.0 seeks to bridge this gap by supporting the entire chain from chip design to fabrication, testing and commercial deployment.
- Strengthening domestic chip capabilities can reduce dependence on foreign suppliers and improve technological and strategic security.
- Commercial design support has also been extended to companies owned and controlled by Overseas Citizens of India (OCIs), provided they are incorporated and headquartered in India.