



H5N1 Bird Flu and Demoiselle Cranes

[Source: DTE](#)

Migratory Demoiselle cranes in Jaisalmer, Rajasthan, face threats from the spreading [H5N1 bird flu](#), compounded by **unusually high rainfall creating toxic water bodies** and **pesticide spraying** on chickpea fields.

- **H5N1: Avian Influenza A (H5N1) or H5N1 Bird Flu** is a highly pathogenic virus primarily affecting **birds but can also infect mammals**.
 - It originated in **China in 1996** and rapidly evolved into a more dangerous strain.
 - Since 2020, it has spread globally across continents. **India first encountered an H5N1 outbreak in 2015**, affecting Maharashtra and Gujarat.
- **Spread to Humans:** Close contact with infected birds or contaminated environments is the primary route of human infection of **avian influenza A viruses**. Person-to-person transmission is rare but possible.
- **Demoiselle Cranes:** The Demoiselle crane (known as the **koonj or kurjan** in India), native to **Russia's Siberian region**, migrates to India during winters to escape extreme cold, particularly to Rajasthan.
 - **Conservation:** [International Union for the Conservation of Nature \(IUCN\) Status](#) (Least Concern) and Khichan (in Rajasthan) hosts **India's first Demoiselle crane reserve, hosts 20,000-30,000 cranes each winter.**



Read more: [H5N1 Bird Flu](#)

Boreal Forests

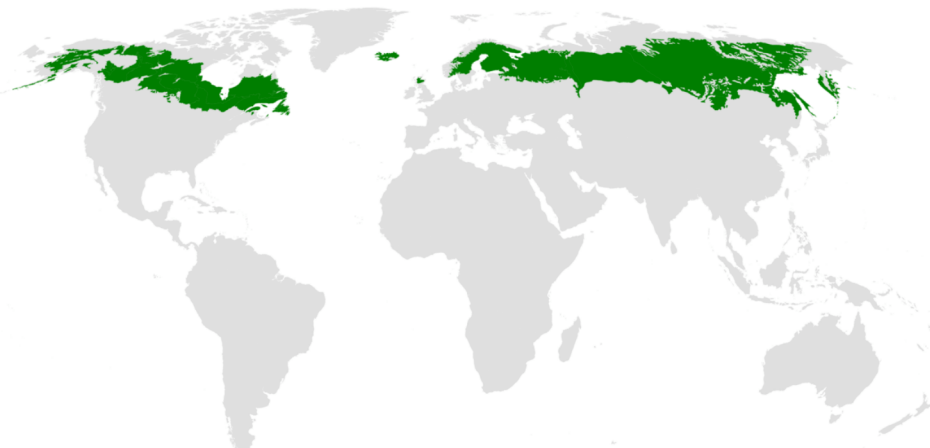
[Source: DTE](#)

A study reveals that nearly **half of the world's boreal forests** are undergoing major changes due to climate change, increasing [wild fire risks](#) and altering their [carbon sink role](#).

- **Key Findings of the Study:** Boreal forests are **warming four times faster than the global average**.
 - Boreal forests are transitioning to an **open state (with sparse tree cover)**, reducing their **carbon storage capacity** and increasing **wildfire risks**, with tree density decreasing from south to north.
 - [Permafrost thawing](#) may release significant **soil carbon**, further complicating carbon storage projections.
- **Boreal Forests:** The boreal forest (or "**taiga**") is the **world's largest land biome**, covering **30% of global forest area** and **10% of Earth's land surface**.
 - The boreal ecozone principally spans **eight countries in the Northern Hemisphere** (Canada, China, Finland, Japan, Norway, Russia, Sweden, and the US).
 - Boreal forests are dominated by coniferous trees **like pine, spruce, and fir**, along with some broadleaf species such as **poplar and birch**. They thrive in **high-latitude** environments.
 - Contains **more surface freshwater than any other biome**, significantly impacting northern oceans and global climate.
 - Boreal regions provide over 33% of lumber and 25% of paper exports, playing a key role in climate regulation and acting as a major carbon reservoir, rivaling tropical forests.

Taiga and Boreal Forest Global Distribution

The taiga or boreal forest covers much of Canada, Alaska, Sweden, Finland, Norway, Estonia, and Siberia and parts of Scotland, Iceland, Mongolia, Japan, and Kazakhstan.



This biome does not occur in the Southern Hemisphere.

Read more: [Types of Forests in India](#)

8th Pay Commission

[Source: BS](#)

The Union government has approved the formation of the **8th Pay Commission**, a move that will benefit **4.5 million central government employees and 6.8 million pensioners**, including defence personnel.

- **Pay Commission (PC):** It assesses the **pay scales, allowances, and benefits** for central government employees, taking into account **inflation** and its impact on **remuneration and the cost of living**.
 - A new PC is **established every 10 years** under the **Department of Expenditure (Ministry of Finance)** to revise salaries and pensions, ensuring fair compensation for government employees. Usually, a retired **Supreme Court judge** heads the PC.
 - Its recommendations are often adopted by state-owned organizations as well.
- **Historical Context of Implications of PC:** Since 1947, the Indian government has established 7 Pay Commissions, with the **7th Pay Commission (2016-2026)** under the chairmanship of **Justice Ashok Kumar Mathur**.
 - The 7th Pay Commission led to an increase of **Rs 1 lakh crore in government expenditure in fiscal year 2016-17**.
- **8th Pay Commission:** It will likely propose formulas for revising the **Dearness Allowance (DA)** and **Dearness Relief (DR)** for employees and pensioners to counter inflation.
 - The DA adjustment is based on the **Consumer Price Index for Industrial Workers (CPI-IW)**, released monthly by the **Labour Bureau**, to track cost-of-living changes.
 - The 8th Pay Commission aims to align government salaries with the rising cost of living, supporting **employee welfare and economic growth**.

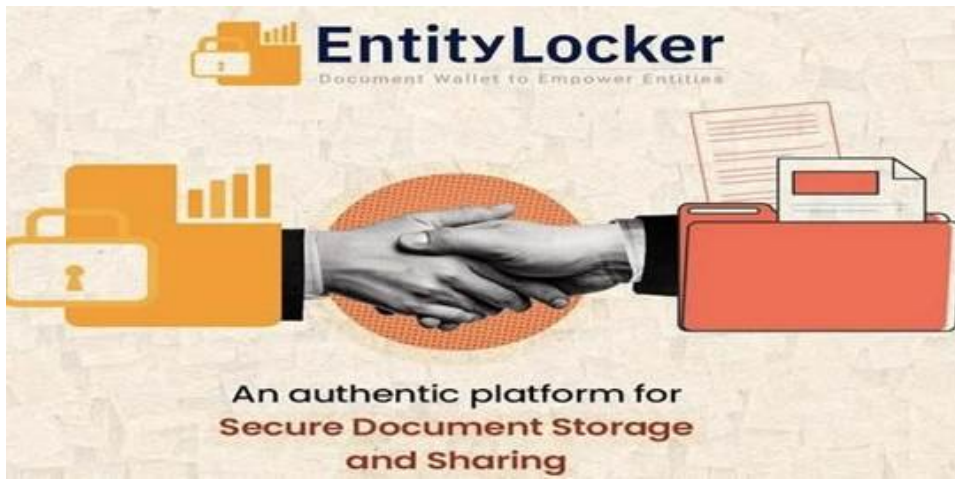
Read more: [Pay Commission](#)

Entity Locker

[Source: PIB](#)

The **Ministry of Electronics and Information Technology (MeitY)** has introduced **Entity Locker**, developed by the **National eGovernance Division (NeGD)** of meity, is part of India's **Digital Public Infrastructure initiative**, aimed at enhancing business efficiency.

- **About:** Entity Locker is a **secure, cloud-based solution** for businesses and organizations of all sizes, including MSMEs, corporations, and startups.
 - The platform enables real-time document access and verification through integration with government agencies like the **Ministry of Corporate Affairs (MCA)**, **Goods and Services Tax Network (GSTN)**, and **Directorate General of Foreign Trade (DGFT)**, and other regulatory bodies.
- **Key Features:** Features encrypted cloud storage, digital signature authentication and Aadhaar-authenticated role-based access for secure, accountable document sharing.
- **Benefits: Reduces administrative friction and boosts business efficiency**, Minimizes document processing times and operational bottlenecks.
 - Entity Locker supports India's goal of a **digitally empowered economy** and aligning with the Union Budget 2024-25 vision for **enhanced digital governance and ease of doing business**.



Read more: [DigiLocker Partners with UMANG](#)

Oysters' Antimicrobial Properties

Source: DTE

Why in News?

According to new research, **antimicrobial proteins** isolated from **oyster hemolymph (the equivalent of blood)** can **kill** certain **drug resistant-bacteria**.

- The proteins can also **improve** the efficacy of **conventional antibiotics** against resistant bacteria species.



What are the Key Facts Regarding Oysters' Antimicrobial Properties?

- **Role of Oysters:** Antimicrobial **proteins and peptides** from oyster hemolymph can:
 - **Kill** bacteria like *Streptococcus spp.*, responsible for **pneumonia, tonsillitis, and rheumatic fever**.
 - Inhibit and **penetrate biofilms** that protect bacteria from antibiotics and immune responses.
 - Enhance conventional antibiotics' efficacy by 2 to 32 times.
- **Immune Defenses of Oysters:** Oysters face many **microorganisms** in their marine environment, so they have **strong immune defenses**.
 - Oyster hemolymph contains **antiviral and antibacterial proteins and peptides** effective against various human and marine pathogens.
- **New Antimicrobial Agents:** Over **90%** of antibiotics humans currently use are derived from **nature**. The same is true for **over 65%** of antibiotics **under recent development**.
- **Traditional Relevance:** It is used in **traditional Chinese medicine** for respiratory and inflammatory conditions.
 - It is integral to the health practices of **Indigenous Australians**.

Note: Globally, nearly **5 million people** die from **antimicrobial resistant infections** each year.

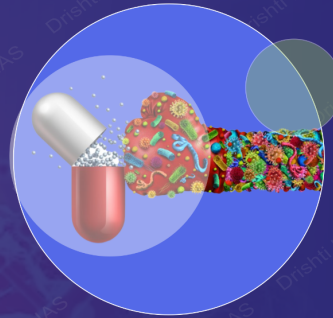
- The annual toll of antimicrobial resistant infections is expected to **rise by 70%**, with an estimated **40 million deaths** between 2025 and 2050.
- **Biofilms** are **bacterial communities** embedded in a **self-produced substance** that **sticks to surfaces, shielding** bacteria from the **immune system and antibiotics**.
 - They are involved in nearly **all bacterial infections**.

What are Oysters?

- **About:** Oysters belong to the **family Ostreidae** and are **classified as invertebrates**.
 - They are **omnivorous** and **live** in groups called **colonies, beds, or reefs**.
 - They are covered with **shells** that are **rough, rock-hard, and usually oval or pear-shaped**.
- **Habitat:** Oysters are found in **shallow ocean waters** worldwide and form colonies in beds or reefs.
 - Food oysters can occasionally produce pearls, though they are **not the same as pearl oysters**, which belong to a **different bivalve family**.
- **Ecological Role:**
 - **Keystone Species:** Oysters are considered a **keystone species** as Oyster beds and reefs provide **critical habitat** and protection for various marine organisms, including **sea anemones, barnacles, and mussels**.
 - **Keystone species** are organisms that have a **disproportionately large impact** on their ecosystems relative to their abundance. E.g., **Tigers, Sea Otters** etc.
 - **Water Filtration:** A single oyster can filter over **two gallons of water per hour**, amounting to up to 50 gallons per day.
 - Oysters **remove** pollutants like **nitrates, ammonia, phosphates, bacteria, and organic matter**, significantly improving water quality and clarity.
- **Diet and Behavior:** Oysters feed by **filtering algae and food particles** from water drawn over their **gills**.
 - All oysters **begin** life as **males** but typically **change permanently to females** after about a year. Also, oysters can **change gender multiple times** during their lifespan.
- **Role as Food:** They are high in **calcium, iron, and protein** and have been consumed raw or cooked by humans for thousands of years.

ANTIMICROBIAL RESISTANCE

The ability of microorganisms to resist the effects of antimicrobial drugs



CAUSES OF ↑ AMR

- Poor infection control/sanitation
- Antibiotic overuse
- Genetic mutations of microbe
- Lack of investment in R&D of new antimicrobial drugs

Microbes that develop AMR are called 'Superbugs'

IMPACTS OF AMR

- ↑ Risk of spreading infections
- Makes infections harder to treat; prolonged illness
- ↑ Healthcare costs

EXAMPLE

- Carbapenem antibiotics stop responding due to AMR in *K. pneumoniae*
- AMR *Mycobacterium tuberculosis* causing Rifampicin-Resistant TB (RR-TB)
- Drug-resistant HIV (HIVDR) making antiretroviral (ARV) drugs ineffective

RECOGNITION BY WHO

- Identified AMR as **one of the top 10 threats** to global health
- Launched **GLASS** (Global Antimicrobial Resistance and Use Surveillance System) in 2015

INDIA'S INITIATIVES AGAINST AMR

- Surveillance of AMR in microbes causing **TB, Vector Borne diseases, AIDS etc.**
- **National Action Plan on AMR (2017)** with One Health approach
- **Antibiotic Stewardship Program** by ICMR

New Delhi metallo-β-lactamase-1 (NDM-1) is a bacterial enzyme, emerged from India, that renders all current β-lactam antibiotics inactive

UPSC Civil Services Examination, Previous Year Questions (PYQ)

Prelims

Q. Which one of the following is a filter feeder? (2021)

- (a) Catfish
- (b) Octopus
- (c) Oyster
- (d) Pelican

Ans: (c)

Q. Which of the following are the reasons for the occurrence of multi-drug resistance in microbial pathogens in India? (2019)

1. Genetic predisposition of some people
2. Taking incorrect doses of antibiotics to cure diseases

3. Using antibiotics in livestock farming
4. Multiple chronic diseases in some people

Select the correct answer using the code given below.

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

Ans: (b)

RBI Issues Revised 'Master Direction' for ARCs

Source: LM

Why in News?

[Reserve Bank of India \(RBI\)](#) has revised the 'Master Direction - Reserve Bank of India (Asset Reconstruction Companies-ARCs) Directions, 2024.

- The revised norms for **ARCs** aim to **streamline operations, ensure transparency, protect creditor interests**, and emphasize due diligence in settlement processes.

What are the Key Points of the RBI's Revised Master Direction on ARC?

- **Board-Approved Policy:** Each [asset reconstruction company \(ARC\)](#) must establish a **board-approved policy** for settling borrower dues, covering various key elements such as:
 - **Cut-off date** for eligibility of **one-time settlement**.
 - **Permissible sacrifice** for different categories when deciding the settlement amount.
 - **Methodology** for evaluating the **realizable value** of the security.
- **Settlement Process:** **Settlement** should be considered only after **all recovery options** have been explored.
 - Preferably, the settlement amount should be **paid in a lump sum** (one-time payment).
 - **Non-lump sum** payment plans must align with **business models, borrower cash flows, and projected earnings**.
- **Independent Advisory Committee (IAC):** An IAC, with technical, financial, or legal experts, should **review settlement proposals** and advise the [ARC's board committee](#).

What are ARCs?

- **About:** An ARC is a **special type of financial institution** that buys [non-performing assets \(NPAs\)](#) from banks and financial institutions and **attempts to recover the debts or associated securities** by itself.
- **Background of ARCs:** The concept of ARCs was introduced by the [Narasimham Committee - II \(1998\)](#), leading to the establishment of **ARCs** under the [Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 \(SARFAESI Act, 2002\)](#).
- **Registration and Regulation of ARCs:** ARC is registered under the [Companies Act, 2013](#) and must also be **registered with the RBI** under **section 3** of the [SARFAESI Act, 2002](#).

- It operates under the SARFAESI Act, 2002, and follows **guidelines issued by the RBI**.
- **Working of the ARCs:**
 - **Asset Reconstruction:** It involves acquiring a bank's or financial institution's rights in **loans, advances, bonds, guarantees, or other credit facilities** for recovery, known as '**financial assistance**'.
 - **Securitisation:** It involves acquiring financial assets by issuing **security receipts** to **Qualified Buyers (QB)**.
 - QBs include **insurance companies, banks, state financial corporations, ARCs** under SARFAESI, and SEBI-registered asset management companies.
 - **Security Receipts:** ARCs issue **security receipts to lenders**, redeemable upon loan recovery, charge a management fee, and **share recovery gains** with the selling financial institutions.

Non-Performing Asset (NPA)

- **About:** NPA is a loan classified as an **NPA** when the loan payments have not been made for a **minimum period of 90 days**.
 - For **agriculture**, a loan is classified as an NPA if the **principal or interest is not paid for two cropping seasons**.
- **Types:** Banks classify NPAs into **three categories** based on the duration of non-performance and recovery chances.
 - **Sub-standard Assets:** NPAs for **12 months or less**.
 - **Doubtful Assets:** NPAs for **over 12 months**.
 - **Loss Assets:** Uncollectible assets with **little or no chance of recovery**, needing full write-off.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Which of the following statements best describes the term 'Scheme for Sustainable Structuring of Stressed Assets (S4A)', recently seen in the news?(2017)

- (a) It is a procedure for considering ecological costs of developmental schemes formulated by the Government.
- (b) It is a scheme of RBI for reworking the financial structure of big corporate entities facing genuine difficulties.
- (c) It is a disinvestment plan of the Government regarding Central Public Sector Undertakings.
- (d) It is an important provision in 'The Insolvency and Bankruptcy Code' recently implemented by the Government.

Ans: (b)

