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EARLIEST EVIDENCE OF IRON USE IN TAMIL NADU

In News

- A landmark study titled ‘**Antiquity of Iron: Recent Radiometric Dates from Tamil Nadu**’ has uncovered evidence of **iron technology in Tamil Nadu dating back to 3345 BCE**, reshaping global and Indian narratives about the timeline and origins of the Iron Age.

Key Findings from the Study

- Earliest Iron Technology:** Charcoal and potsherds excavated from the **Sivagalai site** in Tamil Nadu date back to **2953–3345 BCE**, marking the earliest use of iron globally.
- Earliest Sarcophagus Burial:** A sarcophagus burial at **Kilnamandi**, dated to **1692 BCE**, is the earliest of its kind in Tamil Nadu.
- Iron-Smelting:** Sites such as **Mayiladumparai**, **Kilnamandi**, and **Perungalur** revealed evidence of iron-smelting furnaces, demonstrating advanced technological capabilities in producing durable tools and weapons.

Significance of the Findings

- Global Perspective:** Tamil Nadu’s **early iron use** challenges the idea that iron technology spread from a **single Western origin** to the rest of the world.
- Technological Advancement:** The discovery highlights **South India’s metallurgical sophistication**, with iron tools enabling **agricultural expansion, forest clearing, and land reclamation**.
- Economic and Social Transformation:** The widespread use of iron tools **revolutionized trade, transport, and communication**, contributing to prosperity and societal growth.
- Military Innovations:** The development of **iron-based weaponry**, such as long swords, sabers, shields, and spears, led to more effective warfare tactics, transforming defense strategies.

Iron Age in India

- Cultural Context:** The Indian Iron Age is closely linked to the **Megalithic culture**, marked by large burial structures and iron tools.
 - Key cultural phases include:
 - Painted Grey Ware (PGW):** 1100–350 BCE.
 - Northern Black Polished Ware (NBPW):** 700–200 BCE.

- Earliest Sites:** **Hallur (Karnataka)** and **Adichanallur (Tamil Nadu)**, dating to around **1000 BCE**, were previously thought to represent the origins of India’s Iron Age.
- Overlap with Vedic Period:** Most of the **Vedic period**, except for the Rigveda’s earliest phase, falls within the Indian Iron Age, spanning the **12th to 6th centuries BCE**.

Dating Techniques Used

- Radiometric Dating:** Used to determine the age of materials by analyzing the decay of radioactive isotopes, providing precise age estimates.
- Accelerator Mass Spectrometry (AMS):** A high-precision radiometric technique for measuring radioisotope ratios.
- Optically Stimulated Luminescence (OSL):** Used to date the last exposure of minerals like quartz or feldspar to light or heat, particularly useful for archaeological dating.

Source: TH

15TH NATIONAL VOTERS’ DAY

In News

- India is observing the **15th National Voters’ Day** on **January 25, 2025**, marking 75 years of the Election Commission of India’s (ECI) dedicated service to the nation.

About National Voters’ Day

- Historical Background:** Established in **2011** to mark the foundation of the Election Commission of India (January 25, 1950).
- 15th National Voters’ Day (2025): Theme:** “*Nothing Like Voting, I Vote for Sure*”, emphasizing the critical role of voting in democracy.
- Key Activities:**
 - Presentation of the ‘**Best Electoral Practices Awards**’ to outstanding state and district officials.
 - Special initiatives to commemorate 75 years of the ECI, including:
 - A **commemorative postal stamp**.
 - A **nationwide essay competition** on “*Democracy and India’s Future*”.

Importance of National Voters’ Day

- Promotes Voter Awareness:** Educates citizens about their **right to vote** and the importance of participation in elections.
 - Reinforces the idea that **every vote matters**.

- **Encourages Voter Registration:** Focus on enrolling **first-time voters**, especially young individuals.
 - ♦ Provides Electoral Photo Identity Cards (EPIC) to new voters.
 - ♦ All citizens aged **18 or above** on January 1 of the concerned year, irrespective of caste, creed, religion, or gender, are eligible to vote.
- **Raises Electoral Literacy:** Organizes campaigns to explain the **voting process** and the impact of every vote.
- **Honors Contributions:** Recognizes individuals and organizations for spreading voter awareness and ensuring smooth electoral processes.
- **Strengthens Democracy:** Encourages **active participation** to strengthen India's democratic fabric.
- **Digital Innovations:** Enhanced use of **mobile apps** like the Voter Helpline App and initiatives like **Remote Voting Pilots** for migrant workers.

Achievements in Electoral Governance

- **Expanding the Electorate:** Growth from **17.3 crores** in the first general election (1951-52) to **99.1 crore** in 2025, nearing the **100 crore mark**.
- **Gender Balance:** 21.7 crore electors in the 18-29 age group and a six-point increase in electoral gender ratio from 948 in 2024 to 954 in 2025.
- **Inclusive Electoral Practices:** Introduction of **Braille-enabled EVMs**, wheelchair-accessible polling booths, and assistance for elderly voters.
- **Technology Integration:** Digitization of voter rolls and the launch of the **National Voter Services Portal (NVSP)** for seamless voter registration.
 - ♦ Use of **Electronic Voting Machines (EVMs)** and **Voter Verifiable Paper Audit Trails (VVPATs)** for transparency.
- **Electoral Integrity:** Adoption of the **Model Code of Conduct (MCC)** to ensure free and fair elections.

Election Commission of India: An Overview

- **Constitutional Authority:**
 - ♦ Articles **324–329** empower the Election Commission of India (ECI) to conduct elections for:
 - ♦ **Lok Sabha, Rajya Sabha, State Legislative Assemblies**, and the offices of the **President and Vice President**.
- **Composition:** Chief Election Commissioner (CEC) and two Election Commissioners (ECs).
- **Appointment Process** (as per the 2023 Act):
 - ♦ A **Search Committee**, chaired by the Union Law Minister, prepares a panel of names.

- ♦ The **Selection Committee** (Prime Minister, a Cabinet Minister, and Leader of the Opposition in Lok Sabha) finalizes the appointments.
- ♦ Appointed by the **President of India**.
- **Tenure:** Six years or up to 65 years of age (whichever is earlier).
- **Removal:** The CEC can only be removed like a judge of the Supreme Court.
 - ♦ ECs can only be removed on the recommendation of the CEC.

Conclusion

- The 15th National Voters' Day serves as a reminder of the ECI's legacy in empowering citizens to shape the nation's future through free and fair elections.
- By promoting voter awareness, inclusivity, and participation, National Voters' Day continues to inspire citizens to uphold the values of democracy and actively contribute to the electoral process.

Source: PIB

DONALD TRUMP BANS CBDC IN US

In News

- Recently, the US President through its executive order banned the **creation and use of Central Bank Digital Currency (CBDC)** and emphasizes the development of dollar-backed stablecoins, a private-sector alternative to CBDCs.

Why has the US banned CBDC?

- **Privacy Concerns:** CBDCs could enable government surveillance over individual transactions.
- **Financial Sovereignty:** Avoids centralization of the financial system under the federal government.
- **Support for Decentralization:** Promotes innovation in private-sector digital assets like stablecoins.

What is CBDC?

- **Definition:** CBDC refers to the **digital form of a nation's sovereign currency**, issued and regulated by its central bank. Unlike cryptocurrencies, which are decentralized, CBDCs are centrally managed and backed by the government.
- **Types of CBDCs:**
 - ♦ **Wholesale CBDCs:** Designed for **institutional use**, facilitating large-scale transactions such as interbank transfers, cross-border payments, and securities settlements.
 - ♦ **Retail CBDCs:** Intended for **everyday use** by individuals and businesses. For example:

Token-based (accessed with private and public keys) & Account-based (requires digital identification).

• Features of CBDCs:

- ♦ **Legal Tender:** Recognized as a medium of payment and store of value by all citizens, businesses, and government agencies.
- ♦ **Liability:** Represents a direct liability of the central bank, unlike deposits with commercial banks.

Benefits of CBDC

- **Lower Transaction Costs:** Reduces costs associated with cash handling and traditional banking systems.
- **Transparency:** Tracks transactions to reduce corruption, money laundering, and tax evasion.
- **Crisis Resilience:** Serves as a reliable payment method during natural disasters or pandemics.
- **Global Trade Efficiency:** Simplifies cross-border payments and reduces intermediaries.
- **Eco-Friendly:** Eliminates the need for physical cash, reducing environmental impact.
- **Safe and Stable:** Government-backed and regulated, offering a secure alternative to volatile cryptocurrencies.
- **Reduced Banking Risks:** Prevents panic withdrawals during crises and enhances security.

India's CBDC: E-Rupee

- **Launch of e-Rupee:** Introduced by the Reserve Bank of India (RBI) in **2022**.
- **Usage:** Facilitated through **₹ wallets** offered by banks and non-banks.
- Supports **person-to-person (P2P)** and **person-to-merchant (P2M)** transactions.
- Rationale for e-Rupee
 - ♦ **Digital Transformation:** Aims to modernize the monetary system and reduce dependence on physical cash.
 - ♦ **Cost Reduction:** Minimizes the costs of cash handling and issuance.
 - ♦ **Global Competitiveness:** Aligns with global trends in digital finance to enhance economic inclusion.

Source: LM

FISCAL HEALTH INDEX (FHI) REPORT

Context

- NITI Aayog has released the first Fiscal Health Index (FHI) report.

About

- The report titled "Fiscal Health Index 2025" ranked States for 2022-23.
- **It covers 18 major States** that drive the Indian economy in terms of their contribution to India's GDP, demography, total public expenditure, revenues, and overall fiscal stability.
- It will be an annual publication and offers a systematic approach to assess the state's fiscal health, identify areas for improvement, and promote best practices across states.
- **Sub Indices:** Quality of Expenditure, Revenue Mobilisation, Fiscal Prudence, Debt Index, and Debt Sustainability.

Major Findings

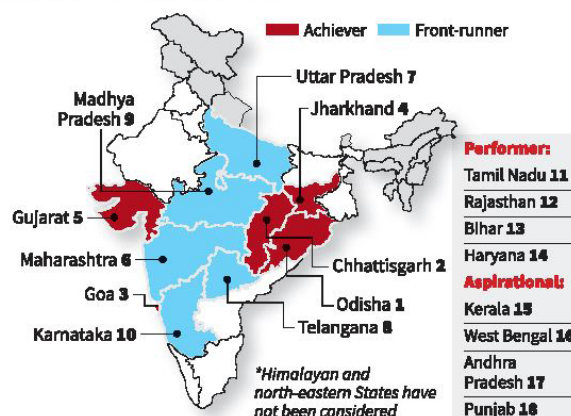
- **Top Performing:** Odisha, Chhattisgarh, Goa, Jharkhand and Gujarat have emerged as top-performing 'achievers' among the States.
 - ♦ It displays strong fiscal health, excelling in revenue mobilization, expenditure management, and debt sustainability.
- **Aspirational States:** Haryana, Kerala, West Bengal, Andhra Pradesh, and Punjab.
 - ♦ These states face high debt, large interest payments, weak revenue generation, and inefficiencies in capital expenditure, with reliance on non-tax revenue impacting their fiscal health and rankings.

States have been classified on the basis of the FHI score as per below categories
FHI scores have been rounded off to the nearest number for the below classification

Above 50	Achiever
Greater than 40 & less than equal to 50	Front Runner
Greater than 25 & less than equal to 40	Performer
Less than equal to 25	Aspirational

Fine balance

Analysis in the Niti Aayog's report on the fiscal health index for FY23 highlights that strong revenue mobilisation, effective expenditure management, and prudent fiscal practices are critical determinants of success



Conclusion

- The report will be instrumental in helping policymakers make informed decisions.
- There is a need for the States to follow a stable fiscal path for balanced regional development, long-term fiscal sustainability, and prudent governance.
- The FHI report helps to promote a more integrated approach to fiscal health reinforcing the shared responsibility of both levels of government.

Source: PIB

USE OF LOUDSPEAKERS IS NOT ESSENTIAL TO RELIGION: HC

Context

- The Bombay High Court held that no one can claim that their right to practise religion has been violated when permission to use a loudspeaker is denied.

About

- The use of loudspeakers and public address systems (PAS) cannot be deemed an **essential religious practice that ought to be protected by law**.
- The HC ruling referred to the **2016 verdict in Dr Mahesh Vijay Bedekar v Maharashtra**, which had directed strict implementation of the **Noise Pollution (Regulations and Control) Rules**.
 - ♦ Under The Noise Pollution (Regulation and Control) Rules, 2000, noise levels in residential areas during the day **must not exceed 55 decibels and, at night, 45 decibels**.

Essential Religious Practices (ERP) Doctrine

- The essential religious practices (ERP) doctrine governs which religious practices are **protected under Articles 25 & 26 of the Constitution**.
 - ♦ **Article 25** guarantees freedom of conscience and free profession, practice and propagation of religion.
 - ♦ **Article 26** gives the right to manage religious affairs.
- **Essential religious practices** are those that are vital or fundamental to religion and if they are not followed, the religion itself will change.
 - ♦ The Essential Religious Practices doctrine was intended to **protect religious autonomy rather than undermine it**.
- The Doctrine has evolved significantly as a result of **various judicial precedents**.
 - ♦ The Doctrine was originally conceived in the **Madras v. Shirur Mutt Case**, in which the

Court made a distinction between '**religious**' and '**secular**' practices.

- ♦ Religious practices were considered to be those of the utmost importance to the religion and secular activities were defined as practices associated with religion but do not really constitute an essential part of it.

Source: IE

NEW INDUSTRIAL CLUSTERS JOIN WORLD ECONOMIC FORUM INITIATIVE

Context

- 33 industrial clusters from 16 countries, including five from India, joined the **World Economic Forum's Transitioning Industrial Clusters Initiative**.

About

- **The new Indian clusters include** Gopalpur Industrial Park, Kakinada Cluster in Andhra Pradesh, Kerala Green Hydrogen Valley, Mundra Cluster in Gujarat and Mumbai Green Hydrogen Cluster.
- **Industrial clusters:** They are **geographically concentrated areas or hubs** where interconnected industries; companies and institutions collaborate to drive economic growth.
 - ♦ These are innovative and collaborative business models, within and across clusters, including those harnessing the power of digital technologies.
 - ♦ They can advance the **deployment of clean-energy infrastructure worldwide**.

WEF Transitioning Industrial Clusters Initiative

- The initiative was first launched at COP26 climate summit in 2021, and developed in collaboration with Accenture and EPRI.
- **Aim:** Pledging to reduce their greenhouse gas (GHG) emissions while boosting economic growth and job creation.
- **Partners:** It now comprises 33 clusters in 16 countries and five continents.
 - ♦ The 33 signatories together represent potential carbon dioxide-equivalent emissions reductions of 832 million tonnes -- approximately the annual emissions of Saudi Arabia.
- **Contribution:** They also make a direct contribution of USD 492 billion to gross domestic product (GDP) and support 4.3 million jobs.
- The initiative is also strengthening its **network of port-anchored clusters** by adding Cluster

from Europe; the Ports of Açu and the Cartagena Industrial Cluster in South America; and the port-based Jubail Industrial City, the first member in the Middle East.

Conclusion

- The initiative aims to promote economic growth and employment while striving towards ambitious CO₂e emissions reductions.
- By convening leading public and private industrial entities, the initiative prepares them to apply competitively for funding, gain regulatory support, and embark on comprehensive developmental activities that support the transition of industrial clusters.

Source: LM

NEWS IN SHORT

KISWAH

Context

- The Kingdom of Saudi Arabia's Islamic Arts Biennale 2025 will witness the first-ever public display of the entire Kiswah of the Kaaba (Ghilaf-e-Kaaba) outside Makkah.

What is Kiswah?

- The Kiswah, which translates to “robe,” is the elaborately embroidered **black cloth that covers the Kaaba**, the cubical stone structure located at the center of the **Masjid al-Haram in Mecca**.
 - ♦ The Kaaba is considered the holiest site in Islam, and the Kiswah holds profound religious and cultural importance.
- The Kiswah is adorned with **Quranic verses** embroidered in **gold and silver thread**, elevating it to one of the highest forms of creative production in Islamic arts.
- **Since AH 1346 (1927)**, the responsibility for its production has been undertaken by the **Kiswah Factory of the Holy Kaaba**, now known as the **King Abdulaziz Complex**.

Source: IE

AD-HOC JUDGES

Context

- The Supreme Court has recommended the appointment of ad-hoc judges in High Courts to address the growing pendency of criminal appeals.

Provisions for Ad-Hoc Judges

- Ad-hoc judges are temporary judges appointed to the judiciary for a specific tenure to address issues like case backlogs or vacancies.
- **Article 224A of the Indian Constitution**, enables the Chief Justice of a High Court to request retired High Court judges to temporarily perform judicial duties.
 - ♦ Such appointments require the **President's approval**.
- **Memorandum of Procedure (MOP)**: It outlines the process for appointing ad-hoc judges, introduced after the establishment of the **Collegium system in 1998**.

Lok Prahari v. Union of India (2021)

- The SC recommended for **ad-hoc appointments** must be routed through the Supreme Court Collegium, which includes:
 - ♦ The Chief Justice of India.
 - ♦ The two senior-most judges of the Supreme Court.
- **Criteria for Appointment**: Ad-hoc judges can be appointed only when recommendations for judicial vacancies remain unfilled for less than **20%** of the sanctioned strength.

Source: IE

SUNRISE SECTOR

Context

- As per the Indo European Business Forum (IEBF), India needs to ‘immediately’ recognise **sunrise industries such as e-sports, gaming and music, and develop world-class infrastructure** to tap the potential of the Indian youth.

About

- **One-fifth of India's incremental GDP growth** is expected to come from gaming and e-sports.
- States such as Maharashtra, Uttar Pradesh and Andhra Pradesh **look to double their GDP in next few years**.
 - ♦ **20%** of this **incremental growth** will come from the **digital economy**.

Sunrise Sector

- It refers to a **rapidly growing sector** in its early stages with high potential for expansion.
- These industries experience significant growth, a rise in startups, and attract substantial venture capital funding, making them appealing to investors for long-term growth prospects.

- **Sunrise Sectors of India:** Electronics and Semiconductors, Electric Vehicles (EV), Renewable Energy, Pharmaceuticals, Agro and Food Processing (A&FP) etc.

Source: TH

FOREX RESERVES

In News

- India's foreign exchange reserves dropped by \$1.8 billion to \$623.98 billion.
 - ♦ The recent decline is attributed to revaluation effects and the Reserve Bank of India's (RBI) interventions to stabilize the rupee.

About Forex reserves

- Foreign exchange reserves(FX reserves) are **assets** held by a **nation's central bank or monetary authority**, primarily in reserve currencies such as the **US Dollar, with smaller portions in the Euro, Japanese Yen, and Pound Sterling**.
 - ♦ These reserves are used to back liabilities and influence monetary policy.
- **Composition** : India's gross foreign exchange reserves consist of **foreign currency assets of the Reserve Bank, gold held by RBI and Special Drawing Rights (SDRs) of the Government of India**.
- The **RBI closely monitors foreign exchange markets**, intervening only to maintain orderly market conditions and curb excessive volatility in the rupee exchange rate, without adhering to any fixed target level or range.
 - ♦ The RBI often intervenes by managing liquidity, including selling dollars, to prevent steep rupee depreciation.

Source: TH

KODAIKANAL SOLAR OBSERVATORY

Context

- To commemorate the 125th anniversary year of the **Kodaikanal Solar Observatory**, the **Indian Institute of Astrophysics (IIA)**, organized the conference on '**Sun, Space Weather, and Solar-Stellar Connections**'.

About

- **Establishment:** The Kodaikanal Solar Observatory (KSO) was established on **1 April 1899**.
- **Location:** It is situated near **Kodaikanal, Tamil Nadu**, on the southern tip of the **Palani Hills**.
- **The Kodaikanal Tower Tunnel Telescope:** It features a 3-mirror Coelostat system comprising:

- ♦ **Primary mirror (M1):** Tracks the Sun,
- ♦ **Secondary mirror (M2):** Redirects sunlight downward,
- ♦ **Tertiary mirror (M3):** Aligns the beam horizontally for solar observation.
- **Discovery of the Evershed Effect (1909):** KSO first detected the effect, which is the radial outflow of gas from sunspots, marking a major contribution to solar physics.

Source: PIB

ISRO'S 100TH LAUNCH: GSLV-F15 NVS-02

Context

- In its 100th launch, the Indian Space Research Organisation (ISRO) is set to send off the NVS-02 satellite aboard the GSLV-F15 mission.

NVS-02 Satellite

- It is the latest addition to the NavIC constellation with advanced features that aim to enhance the system's accuracy and reliability. Key features of NVS-02 include:
 - ♦ **Advanced Navigation Payload:** Operating in three frequency bands—L1, L5, and S—to ensure high positional accuracy.
 - ♦ **Rubidium Atomic Frequency Standard (RAFS):** A precise atomic clock that ensures accurate timekeeping, a critical component for navigation services.
- The satellite will serve applications such as navigation, precision agriculture, emergency response, fleet management, and mobile device location services.

Navigation with Indian Constellation (NavIC)

- It is India's **autonomous regional navigation satellite system**, designed to fulfill both civilian and military navigational needs.
- It provides **precise Position, Velocity, and Timing (PVT) services** within India and extends up to **1,500 km** beyond the country's borders, forming its primary service area.
- NavIC offers two distinct types of services:
 - ♦ **Standard Positioning Service (SPS):** It is designed for all users, it provides a location accuracy better than 20 meters and timing accuracy better than 40 nanoseconds across the core service area.
 - ♦ **Restricted Service (RS):** A secure and encrypted service tailored for authorized users, including defense and strategic applications.

Source: IT

PRALAY MISSILE

Context

- The Defence Research and Development Organisation (DRDO) is set to showcase the Pralay missile at the 2025 Republic Day parade.

About

- Pralay**, is an indigenous **surface-to-surface** short-range quasi-ballistic missile.
- Range and Payload:** Pralay has an operational range of approximately **400 km** and carries a payload capacity of **500 to 1,000 kg**.
- Propulsion:** It is powered by a **solid-propellant** rocket motor.
- The missile is equipped with a **state-of-the-art navigation system** and **integrated avionics**, ensuring precision targeting even in challenging terrains.

Source: TH

SEBI'S 'SACHETISATION' PLAN

In News

- The Securities and Exchange Board of India (SEBI) has proposed promoting financial inclusion through "**sachetisation**" of mutual fund investments.

About Sachetisation

- Sachetisation refers to the process of offering financial products and services in smaller, more affordable packages, making them easier to access and manage.
- The initiative proposes offering small-ticket investments, starting at just 250, to encourage low-income groups to begin their investment journey in mutual funds.
- Objectives:** SEBI aims to make mutual funds accessible by promoting small, periodic investments through Systematic Investment Plans (SIPs), helping individuals develop a habit of systematic savings.
 - The proposal focuses on reaching underserved sections of society, particularly those in rural areas with limited means to invest.

Do you know ?

- Mutual Fund is a financial mechanism that accumulates assets from different shareholders and invests the money into a diverse portfolio of securities.
- Typically, a mutual fund contains various types of securities like bonds, stocks, money market and other financial instruments.
- The mutual fund industry has grown significantly, with Assets Under Management (AUM) rising from 10 trillion in 2014 to 68.08 trillion in November 2024.

Source :IE

SANJAY

Context

- Defence Minister flagged-off 'SANJAY - The Battlefield Surveillance System (BSS)'.

About

- It has been indigenously & jointly developed by the **Indian Army and Bharat Electronics Limited (BEL)**.
- These systems will be inducted to the Indian Army in three phases in **2025**.
 - Year 2025 has been declared as the '**Year of Reforms**' in the Ministry of Defence (MoD).
- Features:** SANJAY is an automated system which **integrates the inputs from all ground and aerial battlefield sensors**.
 - The BSS is equipped with **state-of-the-art sensors and cutting-edge analytics**.
- Significance:** It will **monitor the vast land borders**, prevent intrusions, assess situations with unparalleled accuracy and prove to be a force multiplier in Intelligence, Surveillance & Reconnaissance
 - It will enhance battlefield transparency and transform the future battlefield through a Centralised Web Application.
 - It will provide inputs to Command & Army Headquarters, and the Indian Army Decision Support System.

Source: PIB

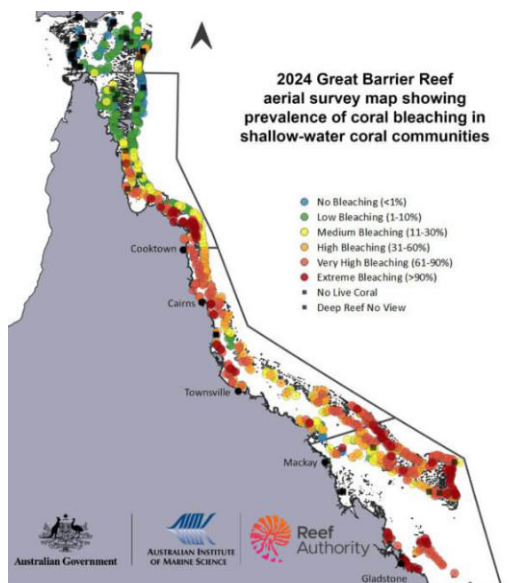
CORAL BLEACHING AT GREAT BARRIER REEF

Context

- The **southern Great Barrier Reef (GBR)** saw **catastrophic coral bleaching** in May 2024, with **44% mortality rate**, triggered by heat stress during one of the largest bleaching events recorded.

About

- This mass bleaching event was the **result of heat stress** caused by the fourth global coral bleaching (GCBE4) event, which began in January 2023.
- It surpassed the 2014-2017 bleaching levels, with 77% of global reefs experiencing heat-induced stress, pushing the GBR into its **fifth-largest widespread bleaching event**.



What are Corals?

- Corals are **invertebrates** that belong to a large group of animals called **Cnidaria**.
 - Corals are formed by **multiple small, soft organisms known as polyps**.
 - They secrete a **rocky chalk-like (calcium carbonate) exoskeleton** around themselves for protection.
 - Coral reefs** are therefore created by **millions of tiny polyps forming large carbonate structures**.
- Appearance:** Corals range in colour from **red to purple and even blue**, but are most commonly shades of **brown and green**.
 - Corals are bright and colorful because of microscopic algae called **zooxanthellae**.

- Significance:** They provide food, shelter, resting and breeding grounds to a quarter of all marine life, acting as nurseries and refuges to protect critical biodiversity.
 - They also support more than 1 billion people living in coastal regions around the world by providing food, livelihoods and recreation.

Coral Bleaching

- Coral bleaching occurs when **corals expel the colourful algae** living in their tissues.
- Without these helpful algae, the **corals become pale** and are vulnerable to **starvation and disease**.
- A bleached coral is not dead, but **ocean temperatures need to cool off for any hope of recovery**.
- At least **14% of the world's** remaining corals were estimated to have died in the previous two global bleaching events.
- Scientists had previously projected that coral reefs would cross a **tipping point at 1.5 degrees Celsius (2.7 F) of global warming**, whereby up to **90% of reefs** would be lost.
 - The latest record bleaching **adds to growing evidence that reefs have already passed a point of no return at just 1.3 C (2.3 F) of warming**.

Can corals recover from bleaching?

- Corals can recover from bleaching over time, but **only if temperatures drop and conditions return to normal**.
- When this happens, the **algae returns** and the corals gradually regain their health.

Source: DTE

