

NEWS TODAY

United Nations' World Meteorological Organization (WMO) released its fourth annual Air Quality and Climate Bulletin

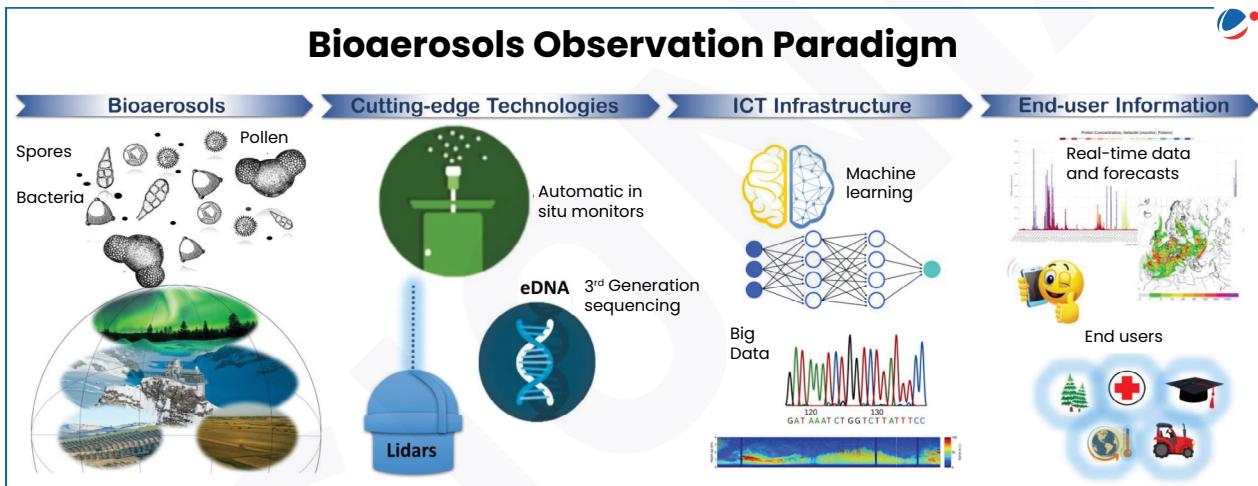
The Climate Bulletin reports on the state of air quality and its connections to climate change.

Key findings

- **Global PM2.5 concentrations:** Europe and China show lower PM2.5 pollution, while North America and India see increased emissions from anthropogenic activities.
 - ⊕ Particulate Matter smaller than 2.5 micrometers in diameter is referred to as PM2.5.
- **Global PM hotspots:** Include agricultural areas in Central Africa, Pakistan, India, China and South-East Asia.
- **Impacts of PM on crops:** Reduces crop yields by 15% as it reduces sunlight reaching leaf surfaces.
- **Aerobiology Advancements:** New technologies have enabled real-time bioaerosol monitoring.

About Aerobiology

- **Aerobiology** is the study of the movement and impact of airborne biological particles, or bioaerosols, on human, animal, and plant health. **Bioaerosols include:**
 - ⊕ Bacteria, fungal spores, pollen grains, viruses, etc.
- **Bioaerosols** reflect changes in biodiversity, plant flowering patterns, and distribution, all sensitive to climate shifts.
 - ⊕ Hence, new technologies are needed to improve understanding of Bioaerosols which would further enhance forecasting and climate change impact assessments.
- **New observational techniques:** Such as high-resolution image analysis, holography, multi-band scatterometry, fluorescence spectrometry and nanotechnology for DNA sequencing.



India's Military Diplomacy accelerates with consecutive Exercises

In recent months, India's military diplomacy has intensified with consecutive exercises involving countries from around the world for all three Services.

What is Military Diplomacy?

- Also known as Defense Diplomacy, it refers to pursuing foreign policy objectives through the peaceful employment of defense resources and capabilities.
- India's military diplomacy involves contributing to UN peacekeeping, providing humanitarian assistance, conducting joint exercises, etc.

What are the significances of Military Diplomacy?

- **Building trust and confidence:** Regular dialogue and military exchanges can help reduce mistrust and likelihood of conflicts.
- **Strengthening alliances and partnerships:** Defense cooperation agreements, technology transfers, and joint military drills, etc., can result in greater collaboration in regional security architectures. e.g., QUAD Security Dialogue.
- **Defense modernization and capabilities:** Through transfer of technology, knowledge sharing, and training. e.g., Joint development of BrahMos missiles by India and Russia.
- **Others:** Strategic balancing in geopolitically sensitive regions; enhanced soft power through humanitarian aids, etc.

Challenges in India's Military Diplomacy: Balancing strategic partnerships with major global powers like the US and Russia, 'Big Brother' perception among South Asian nations, capacity gaps in terms of domestic manufacturing capabilities, etc.

India's proactive engagements—through military exercises, capacity building, and peacekeeping operations—demonstrate its commitment to fostering security cooperation and shaping future security architecture of Indo-Pacific and beyond.

Recent/ scheduled Military Exercises

- **Yudh Abhyas:** India-US bilateral Army exercise set to commence at the Mahajan field firing ranges in Rajasthan from today (Sep 09, 2024).
- **Tarang Shakti:** Multilateral Air Exercise involving countries like Australia, Greece, Sri Lanka, the UAE, Japan, Singapore, the US, etc.
- **Malabar Naval Exercise:** Scheduled to be held off the Visakhapatnam coast in October India, Australia, Japan and the US.
- **Indra:** Bilateral exercise between Indian and Russian army.

MHA Guidelines on Recovery and Reconstruction (R&R) Funding Window within NDRF and SDRF

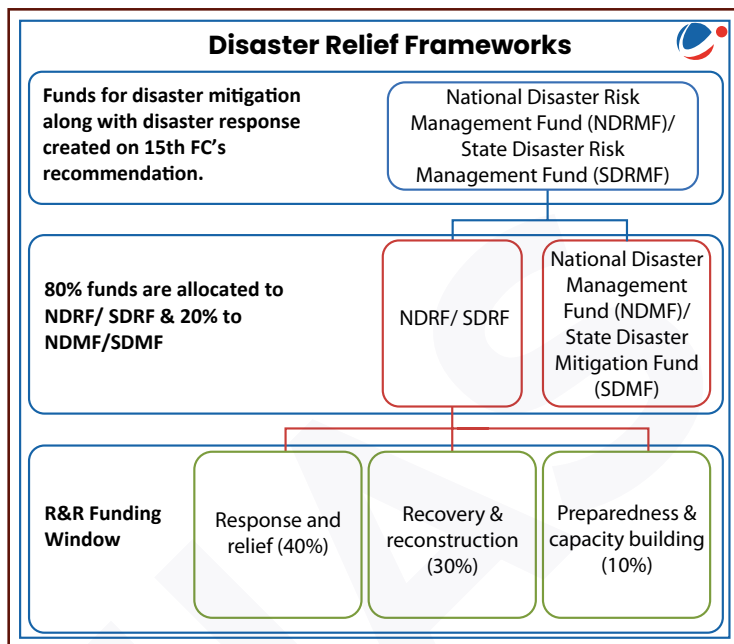
Originally, the guidelines for constitution and administration of **National Disaster Response Fund (NDRF)** and **State Disaster Response Fund (SDRF)** were issued by the **Ministry of Home Affairs (MHA)** in 2022.

About R&R Funding Window

- **Aim:** To address gaps in funding for states affected by natural disasters, reallocating resources within existing disaster relief frameworks to support recovery efforts better.
 - ⊖ It has been created on recommendations of 15th Finance Commission (FC).
- **Under NDRF & SDRF:** Funds for response and relief; recovery & reconstruction; preparedness & capacity building will be distributed.
 - ⊖ NDRF R&R window is to assist State with additional funds where expenditure required is beyond state's coping capacity.
- **Nodal Agency for Implementation:** State Disaster Management Authority (SDMA)
- **Calamities covered (notified disasters):** cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst, pest attack, and frost & cold wave.
- **Activities Under R & R:** Housing, education, infrastructure, etc.

Need for R&R Funding

- **Absence of R&R funding window** to support states, affects development, deepening poverty and backwardness.
- Without recoveries, states lag in development, resulting in regional imbalances.



China stopped short of providing debt-relief to African Countries

At a recent meeting of **9th Forum on China-Africa Cooperation (FOCAC)**, China has stopped short of providing the debt relief sought by many African countries, but has pledged \$50.7 billion over three years in credit lines and investments.

- This move highlights Chinese debt-trap diplomacy and the differences between India's approaches towards engagement with Africa with that of Chinese approach.

Difference between Indian and Chinese Model of engagement with Africa

	China	India
Bilateral engagement	Focused on natural resource extraction. Some projects were criticized as "vanity projects".	Focused on the spirit of developing together as equals based on the Kampala Principles (10 Guiding Principles for India Africa Engagement) as highlighted by Indian PM in 2018. E.g., India's successful move of including African Union as a member of G20.
Financial assistance	Accused of 'Debt-trap Diplomacy'. e.g., US\$ 143 billion of investment (2000 to 2017).	India provides concessional lines of credit, grants and capacity building programmes. e.g., tele-education and telemedicine programmes.
Capacity building and Skill development	Accused of employing mostly Chinese workers and engaging in unfair practices. e.g., low salary for locals, etc.	Indian companies hire African talent and engage in capacity building of locals. e.g., Indian Technical and Economic Cooperation (since 1964).

India's interest in Africa

- **Economic:** India is now one of the top five investors in Africa.
- **Mineral security:** Africa holds ~30% of the world's mineral reserves.
- **Strategic Influence:** Africa's presence in global forums is pivotal for India's vision of rule-based global governance.

Allow natural growth for India's EV Sector to avoid India becoming an "EV Colony" for China: GTRI

A recent flagship report by **Global Trade Research Initiative (GTRI)** titled "India's Strategy to Avoid Harm in the Global EV Market Shake-Up" called for allowing market forces to steer India's Electric Vehicle (EV) sector's growth and carve out its own path in global EV landscape.

Brief Background

- In 2023, China was a dominant force in global EV market, exporting 1.6 million EVs valued at USD 36.7 billion.
- USA, EU, Canada, and some other western countries, however, have started imposing tariff and other restrictions on imports of EVs and parts from China.
- In response, China is shifting its production and assembly units to other countries, starting with ASEAN nations and India.
 - ⊖ These units would still depend heavily on imports (70-80% of parts) from China, including batteries.

India's unique EV Challenges

- **Environmental Concerns:** Over-reliance of India's electricity generation on fossil fuels like coal diminishes the environmental benefits of EVs.
 - ⊖ EV production, particularly battery manufacturing, has a high carbon footprint, starting from the mining stages.
- **Dependence on China:** >80% of an EV's cost comes from batteries and components produced in China.
 - ⊖ Risk of China dumping excess EVs in India as access to developed markets tightens.

Key Recommendations

- Invest in R&D for advanced battery technologies, like solid-state batteries and hydrogen fuel cells.
- Invest in battery recycling infrastructure and support clean energy sources to power EV charging stations.
- Conduct thorough life-time assessments of the environmental impact of EVs to prioritize long-term sustainability over short-term gains.

India's first 'teal carbon' study, undertaken at Keoladeo National Park (KNP)

The study depicted the **potential of teal carbon as a tool to mitigate climate change**, if the anthropogenic pollution in the wetlands can be controlled.

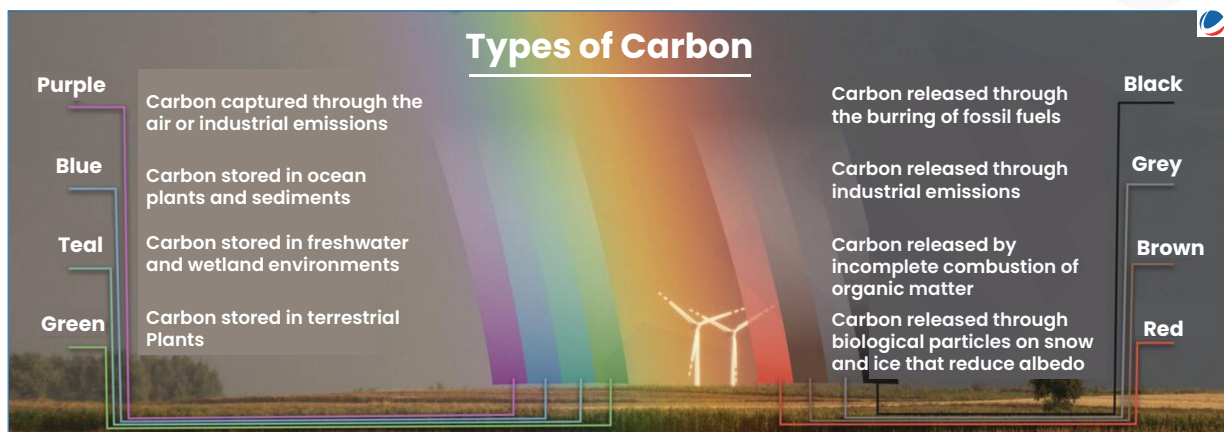
➤ Study also reveals **elevated methane emissions can be reduced by use of a specialized type of biochar**, which is a form of charcoal.

About Teal Carbon

- Teal carbon refers to **carbon stored in non-tidal freshwater wetlands**, encompassing carbon sequestered in vegetation, microbial biomass, and dissolved and particulate organic matter.
- Teal carbon, being a **color-based terminology (refer infographics)**, reflects the classification of the organic carbon **based on its functions and location** rather than its physical properties.
- In contrast, **black and brown carbon** are produced by incomplete combustion of organic matter and contribute to global warming.
- **Significance:** It contributes to an increase in the ground water level, flood mitigation and heat island reduction, supporting a sustainable urban adaptation.

About Keoladeo National Park (Bharatpur, Rajasthan)

- Declared a **national park in 1982** and a **UNESCO World Heritage Site in 1985**.
- Home to over **370 species of birds and animals** like pythons, Siberian cranes etc.
- Placed on the **Montreux Record (Ramsar Convention)** in 1990 due to "water shortage and an unbalanced grazing regime".



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Also in News



Swachh Vayu Survekshan Awards, 2024

The Awards were presented to **Surat, Jabalpur, & Agra** (category 1), **Firozabad, Amravati, & Jhansi** (category 2), **Raebareli, Nalgonda, & Nalagarh** (category 3).

About Swachh Vayu Survekshan Awards

- **Initiative of the Environment Ministry** ranks cities on the implementation of activities approved under **city action plan & air quality in 130 National Clean Air Program (NCAP) cities**.
- **Criteria:** solid waste management, road dust control, industrial emissions, etc.
- **3 categories:** Given annually on **International Day of Clean Air for Blue Skies (September 7th)** to top 3 cities based on population as under -
 - ⊕ **Category-1** (10 Lakhs+);
 - ⊕ **Category-2** (3 - 10 Lakhs);
 - ⊕ **Category-3** (under 3 Lakhs).



BepiColombo

BepiColombo has completed its **latest flyby of Mercury**. It will begin to orbit in 2026.

About BepiColombo

- **Launched: 2018.**
- **BepiColombo**, a joint **European-Japanese mission**, consisting of **two spacecraft riding together to Mercury to orbit and to study the planet**.
 - ⊕ **The European Space Agency's Mercury Planetary Orbiter (MPO)** will study the planet's **surface and interior**.
 - ⊕ **The Japan Aerospace Exploration Agency's Mercury Magnetospheric Orbiter (MIO)** will study the **planet's magnetic field**.
- **Only two other spacecraft have visited Mercury: NASA's Mariner 10 and MESSENGER.**



Silicon Carbide

India's 1st **silicon Carbide manufacturing facility** to be set up in Odisha

Silicon Carbide (SiC)

- Also known as **carborundum**, it is an exceedingly **hard, synthetically produced crystalline compound of silicon and carbon**.
- **Properties:** Excellent thermomechanical characteristics, including high thermal conductivity, excellent mechanical properties, excellent resistance to wear and oxidation.
- **Applications:** semiconductor devices, mechanical seals, structural ceramics, heat exchangers, optical mirrors, ballistic armor, etc.



Water Spinach

Water spinach now reached the door of the farmers with the technology developed by the Indian Institute of Vegetable Research (IIVR).

About Water spinach

- Native to **tropics and subtropics**, this **semi-aquatic perennial plant** is believed to have been the **first domesticated in Southeast Asia**.
- **Benefits**
 - ⊕ Rich in **folic acid (vitamin B9)**; Contains medium levels of **beta carotene, calcium, vitamin E and C**.
 - ⊕ Helps prevent **neural tube defects in unborn children**.
 - ⊕ Being **rich in iron**, it's beneficial for people with **anemia**.
 - ⊕ Has **great potential as a purifier of aquatic habitats**.



Sahariya Tribe

Recently, More than 100 cases of malnourished children among Sahariya tribe have been reported from Baran district of Rajasthan.

About Sahariya Tribe

- Sahariyas are **one of the PVTGs** that are **mostly inhabited in Madhya Pradesh, Uttar Pradesh, and Rajasthan**.
- ⊖ PVTGs are tribal communities that show either a **declining or stagnant population**, use of **pre-agrarian technology, economic backwardness, and low literacy**.
- Generally reside in **separate basti in the village**, called **Saharana**.
- **Economic activities:** Agriculture (primarily rainfed), collection of minor forest produce, etc.



Helium

Two NASA astronauts remain on the International Space Station due to a faulty propulsion system.

- It includes **Helium leaks** which also affected past missions like ISRO's Chandrayaan 2.

Helium

- It is an **element in Group 18 (noble gases)** of the periodic table.
- **Second lightest element**, after hydrogen.
- **Colorless, odorless, and tasteless gas**.
- **Lowest boiling and freezing points** of any known substance.
- **Use in Rockets:** It **pressurizes fuel tanks** to ensure a steady flow of fuel and it is also used in **cooling systems**.
- **Leak Vulnerability:** Due to small atomic size, it can escape through tiny gaps or seals.



Certificate of Deposit

Bank's Certificates of Deposit issuance increased nearly 3-time in FY24 as compared to FY22.

About Certificates of Deposit (CDs)

- CDs are **negotiable, unsecured money market instrument**, issued by a bank as a **promissory note against funds** deposited with it for a **maturity period up to one year**.
- **Issued by:** Scheduled Commercial Banks; Regional Rural Banks; Small Finance Banks, and All-India Financial Institutions.
- CDs shall be issued in **minimum denomination of ₹5 lakh & in multiples of ₹5 lakh** thereafter.
- **Tenor:** Minimum 7 days and maximum 1 year.



Nilgiri Mountain Railways

Redevelopment of Nilgiri Mountain Railway stations under **Amrit Bharat Station Scheme** threatens its historical and architectural value.

About Nilgiri Mountain Railway

- **First proposed in 1854 and completed in 1908**, it is a 46-km long metre-gauge single-track railway in Tamil Nadu.
- It showcases late **19th century technology with unique rack and pinion traction** for steep gradients.
- In **2005**, UNESCO declared it as a **World Heritage Site as an extension to the Darjeeling Himalayan Railway**. It has since then been a part of the greater heritage site of the Mountain Railways in India.
 - ⊖ Other heritage mountain railways in India include **Darjeeling Himalayan Railway and Kalka Shimla Railway**.

Personality in news



Sarat Chandra Bose (1889 - 1950)

Eminent freedom fighter Sarat Chandra Bose was remembered on his 135th birth anniversary (September 06).

About Sarat Chandra Bose

- Born in Cuttak (Odisha)
- He was a **member of the Bengal Legislative Council** and a **part of the Indian National Congress**.
- He was also **elected as an Alderman** multiple times in the **Calcutta Corporation**.

Key Contributions

- Left his professional practice to join **Civil Disobedience Movement (CDM)** in 1930; he was **arrested in 1932 for 3-years** due to his involvement in the CDM.
- **Involved with parties having socialist alignment** such as the **Forward Bloc**.
 - ⊕ **Forward Bloc** was founded by his brother **Netaji Subash Chandra Bose**.
- **Vehemently opposed the partition of Bengal and Punjab** over religious lines and **resigned from the Congress Working Committee** in 1947.
- Published newspapers such as **The Socialist Republican, Mahajati, and The Nation**.

Values: Courage of Conviction, Patriotism, etc.



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



PRAYAGRAJ



PUNE



RANCHI