

DAILY CURRENT AFFAIRS (DCA)

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SIX HERITAGE SITES IN TENTATIVE UNESCO LIST

Context

- Madhya Pradesh's six heritage sites have been included in the tentative UNESCO list.

About

- The sites are Gwalior Fort, the historical Group of Dhamnar, the Rock Art Sites of Chambal Valley, Bhojeshwar Mahadev Temple, Burhanpur's Khooni Bhandara and the Gond monuments of Ramnagar, Mandla.
- MP is home to three UNESCO heritage sites - Sanchi Stupa, Khajuraho Group of Monuments and Bhimbetka Rock Shelters.

Gwalior Fort

- It is located on the **basalt rock hills**.
- It was initiated by Raja Sourya Sena who finished the fortification system around the plateau in 773CE.
- The modern-day fort, embodying a defensive structure and two palaces was built by the **Tomar Rajput ruler Man Singh Tomar in 1398**.
- Ancient Temples in the Gwalior fort includes:
 - ♦ **Teli ka Mandir**, dedicated to lord Shiva, Vishnu, and Matrikas.
 - ♦ **The Chaturbuj temple** which has mathematical connection where the second oldest reference to **zero in mathematics** is seen in a carving.
 - ♦ The adjoining twin temples are known as **Sas Bahu temples**, dedicated to Vishnu and have an inscription from 1150 CE.

Historical Group of Dhamnar

- The Dhamnar caves are located on a hill near the village of Dhamnar.
- The rock-cut temple site has 51 caves, stupas, chaityas, passages and dense dwellings and was built in the 7th century AD.
- The site contains a colossal statue of **Gautam Buddha** in the nirvana pose.

Bhojeshwar Mahadev Temple

- The temple is thousand-year-old and dedicated to Lord Shiva. It is set on a 3-tier sandstone platform in 6 meters square.

- It has architectural grandeur, colossal lingam, and historical significance.
- It was built during the 11th century under the patronage of **Raja Bhoj in Bhojpur** and represents the zenith of temple architecture during the Paramara period in India.

Rock Art Sites of Chambal Valley

- At Daraki-Chattan in the Chambal basin, a cave in the quartzite buttresses of Indragarh hill.
- The vertical walls of the cave boast more than 500 cupules. On the southern wall of the cave at Daraki-Chattan, small circular cupules show conical depth and are about two million years old.

Khooni Bhandara

- It is an underground water management system comprising eight waterworks built in Burhanpur.
- It is the Mughal period water work following the persian qanat approach.
- It was built by erstwhile ruler **Abdurrahim Khankhana** in 1615.

Gond Memorial of Ramnagar

- The architectural complexes were built by Gond kings of Garha Mandla, **Hirde Shah** and located on the bank of the **Narmada river** in Ramnagar.
- The cluster of monuments include the following:
 - ♦ **Moti Mahal** (Rajmahal), Ramnagar, Mandla
 - ♦ **Raibhagat ki Kothi**, Ramnagar, Mandla
 - ♦ **Vishnu Mandir** (Suraj mandir), Ramnagar, Mandla
 - ♦ **Begum Mahal**, Chaugan Rayotwari
 - ♦ **Dalbadal Mahal**, Chaugan Ryotwari

Source: **TOI**

NUCLEAR DISARMAMENT

Context

- António Guterres, the Secretary-General of the United Nations has **urged States with nuclear arsenals for disarmament**.

Nuclear Disarmament

- Disarmament refers to the **act of eliminating or abolishing weapons** (particularly offensive arms) either unilaterally or reciprocally.
- It may refer either to **reducing the number of arms, or to eliminating entire categories of weapons**.

Nuclear Powers in the World

- There are **nine countries** recognized as possessing nuclear weapons.
- These countries are often referred to as “**nuclear-armed states**” or “**nuclear powers.**”
- United States, Russia, China, United Kingdom, France, India, Pakistan, North Korea and Israel.

Treaties Related to Nuclear Disarmament

- **Treaty on the Non-Proliferation of Nuclear Weapons (NPT):** Signed in **1968** and entered into force in **1970**, the NPT aims to prevent the spread of nuclear weapons and promote disarmament.
 - ♦ It divides the world into nuclear-weapon states (NWS), recognized as possessing nuclear weapons at the time of the treaty’s signing, and non-nuclear-weapon states (NNWS), which agree not to develop or acquire nuclear weapons.
 - ♦ The treaty also requires NWS to pursue disarmament negotiations in good faith.
- **Treaty on the Prohibition of Nuclear Weapons (TPNW):** Adopted by the United Nations in **2017** and opened for signature in 2018, the TPNW aims to prohibit the development, testing, production, stockpiling, stationing, transfer, use, and threat of use of nuclear weapons.
 - ♦ It represents a significant step towards nuclear disarmament, although it has not been signed by nuclear-armed states.
- **Comprehensive Nuclear-Test-Ban Treaty (CTBT):** Opened for signature in **1996**, the CTBT aims to ban all nuclear explosions for both civilian and military purposes.
 - ♦ While the treaty has been signed by **185** countries and ratified by **170**, it has not entered into force as nuclear-armed states must ratify it to become operational.
- **Outer Space Treaty:** This multilateral agreement entered into force in 1967 and bans the siting of weapons of mass destruction in space.
 - ♦ All nine states believed to have nuclear weapons are parties to this treaty.

Arguments in Favour of Nuclear Disarmament

- **Humanitarian Concerns:** Nuclear weapons possess unparalleled destructive power, capable of causing immense loss of life, widespread devastation, and long-term environmental damage.

- **Global Security:** The proliferation of nuclear weapons increases the likelihood of their use, whether intentionally or accidentally, leading to catastrophic consequences for humanity.
- **Economic Benefits:** Maintaining and modernizing nuclear arsenals incurs substantial financial costs for countries whereas funds can be redirected from nuclear weapons towards more constructive purposes to improve overall well-being.
- **Non-proliferation and Arms Control:** By demonstrating commitment to disarmament, nuclear-armed states can encourage non-nuclear-weapon states to adhere to non-proliferation agreements and refrain from developing their own nuclear capabilities.
- **Ethical and Moral Imperatives:** Eliminating nuclear weapons is viewed as a moral imperative and a step towards building a more peaceful and just world.
- **Environment Pollution:** Nuclear weapons testing and potential use can have devastating environmental consequences, including radioactive contamination of land, air, and water.

Arguments Against Nuclear Disarmament

- **Deterrence:** Proponents of nuclear deterrence argue that possessing nuclear weapons serves as a powerful deterrent against potential adversaries, preventing conflicts and maintaining strategic stability.
- **National Security:** Possessing nuclear arsenals provides a form of insurance against potential threats and enhances the ability to protect the interests and sovereignty of a country in an uncertain international environment.
 - ♦ For these countries, relinquishing nuclear weapons could be perceived as weakening their security posture and leaving them vulnerable to external threats.
- **Strategic Stability:** Nuclear weapons are often seen as instruments for maintaining strategic stability between rival nuclear-armed states.
- **Verification and Compliance:** Critics argue that without robust verification mechanisms and effective enforcement measures, countries may exploit disarmament agreements for strategic advantage.

- **Geopolitical Realities:** Deep-rooted mistrust, unresolved conflicts, and strategic competition among states make it difficult to envision a scenario in which all countries would willingly and simultaneously relinquish their nuclear weapons.

Way Ahead

- Nuclear disarmament is seen as a crucial step towards reducing the risks and promoting international peace and stability.
- While achieving complete nuclear disarmament may be a long-term objective, incremental progress can still be made through concerted international efforts and cooperation.
- It requires sustained commitment from all nations to work towards a world free of nuclear weapons, ensuring the security and well-being of future generations.

India's Nuclear Weapon Program

- **Smiling Buddha:** In 1974, India conducted its first nuclear test code-named "Smiling Buddha, and since then, it has developed a nuclear triad consisting of land-based, sea-based, and air based delivery systems.
- **Operation Shakti:** In 1998, India conducted a series of nuclear tests at Pokhran, codenamed "Operation Shakti."
 - ♦ These tests included both fission and fusion devices and marked India's formal entry into the nuclear weapons club.
- **International Criticism:** The international community has criticised India's nuclear weapons programme, particularly the United States and its allies.
- **No First Use:** India has a "no first use" policy, meaning it pledges not to use nuclear weapons first in a conflict but reserves the right to retaliate if attacked with nuclear weapons.

India's stance on nuclear disarmament?

- India has argued that any country's possession of nuclear weapons poses a threat to global security, and that the only way to ensure peace and stability is for all nuclear weapons to be destroyed.

- India is **not a signatory to the Non-Proliferation Treaty (NPT)**, and stated that the NPT is discriminatory and perpetuates a two-tiered system of **nuclear haves and have-nots** by unfairly restricting access to peaceful nuclear technology for non-nuclear weapon states.
- India's nuclear disarmament and nonproliferation policy is complex and nuanced, reflecting the country's **desire for security and recognition**, as well as its commitment to global disarmament and non-proliferation.

Source: TOI

CYCLONE STORM MEGAN

Context

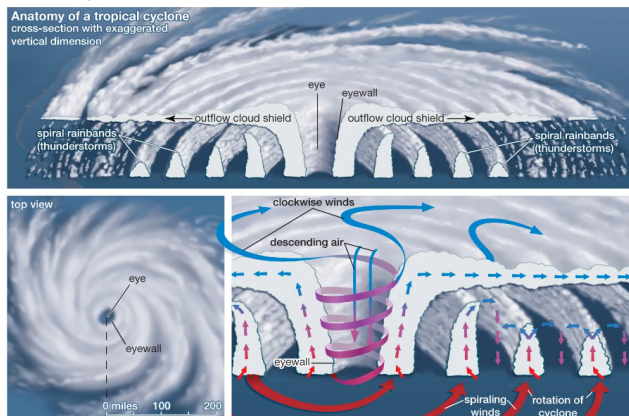
- **Cyclone Storm Megan** weakened to a tropical low recently while bringing **heavy rain and winds to Australia's Northern Territory.**

What are cyclones?

- Cyclones are **large revolving storms caused by winds blowing around a central area of low atmospheric pressure.**
 - ♦ In the **southern hemisphere** these storms rotate in a **clockwise** direction, while in the **northern hemisphere** rotate in an **anti:clockwise** direction.
- **Cyclones develop over warm waters in the tropical regions** of the oceans where areas of very low pressure are created by air being heated by the sun.
 - ♦ This **causes the air to rise very rapidly** and becomes saturated with moisture that condenses into large thunderclouds.
- The cyclone is known by **different names** in different regions of the world:

Region	Indian ocean	USA	Caribbean Sea	Western North Pacific	Japan	Australia	Philippines
Name for cyclone	Cyclones	Tornadoes	Hurricanes	Typhoons	Taifu	Willy willy	Baguio

How Cyclones are formed?



The development cycle of tropical cyclones may be divided into three stages:

1. Formation and Initial Development Stage: The formation and initial development of a cyclonic storm depends upon various conditions. These are:

- **A warm sea:** a temperature in excess of 26 degrees Celsius to a depth of 60 m.
- **Atmospheric instability:** It encourages formation of massive vertical cumulus clouds due to convection with condensation of rising air above ocean surface.
- **Wind shear:** One thing in the atmosphere that inhibits the growth of cyclones is called the **vertical shear**, which refers to rapid change in wind velocity or direction, for up to 10 kilometers or so.
 - ♦ **Strong vertical shear suppresses cyclones** and weak vertical shear increases cyclones.

2. Mature Tropical Cyclones: When a tropical storm intensifies, the air rises in vigorous thunderstorms and tends to spread out horizontally at the tropopause level.

- Once air spreads out, a positive perturbation pressure at high levels is produced, which accelerates the downward motion of air due to convection.
- With the inducement of subsidence, air warms up by compression and a warm **'Eye' is generated**. Generally, the 'Eye' of the storms has three basic shapes: (i) circular; (ii) concentric; and (iii) elliptical.
- The main physical feature of a mature tropical cyclone in the Indian Ocean is a **concentric pattern of highly turbulent giant cumulus thundercloud bands**.

3. Modification and Decay: A tropical cyclone begins to weaken in terms of its central low pressure,

internal warmth and extremely high speeds, as soon as its source of warm moist air begins to ebb, or is abruptly cut off. This happens after its landfall or when it passes over cold waters.

Bomb Cyclone and Bombogenesis

- A Cyclone is called a bomb cyclone when the **pressure drops rapidly in the low:pressure mass** — by at least 24 millibars in 24 hours.
- This quickly increases the pressure difference, or gradient, between the two air masses, making the winds stronger. **This process of rapid intensification is called bombogenesis.**

Naming Procedure of Cyclones:

- The **WMO/ESCAP Panel on Tropical Cyclones** at its twenty seventh Session held in **2000 in Muscat, Sultanate of Oman** agreed in principle to assign names to the tropical cyclones in the Bay of Bengal and Arabian Sea.
- According to the approved principle, **a list of 64 names in eight columns** has to be prepared.
 - ♦ The name has been contributed by Panel members.
- **The RSMC tropical cyclones, New Delhi** gives a tropical cyclone an identification name from the above name list.
- The Panel member's name is **listed alphabetically countrywise** in each column. These lists are used sequentially, and **they are not rotated every few years unlike the Atlantic and Eastern Pacific lists**.
- Since all the 64 names listed initially got exhausted, **a new list comprising 169 names contributed by the 13 Member countries of the WMO/ESCAP Panel has been prepared and put in place since the pre:monsoon season of 2020.**

Mitigation Strategies

The mitigation measures as proposed by the **UN-HABITAT** are given below:

- **Hazard Mapping** :It maps the pattern of old cyclones using their wind speed, areas affected, flooding frequency etc.
- **Land use planning** :With the effective implementation of land use planning, the key activities and settlements can be avoided in the most vulnerable areas. For example, a settlement in the floodplains is at utmost risk. Hence, authorities should plan ahead to avoid such risks.

- **Engineered Structures** :These structures withstand the wind forces and prove to mitigate the losses. The public infrastructure of the country should be designed keeping in mind the hazard mapping of the cyclone.
- **Retrofitting Non-Engineered Structures:** To enhance houses' resistance to the wind or certain disastrous weather conditions.Eg. Construction of a steep:slope roof to avoid the risk of being blown away.
- **Cyclone Sheltering** :At national, state and regional level, the construction of cyclone shelters should be taken up to help the vulnerable community from cyclones.
- **Flood Management** :As the cyclonic storms lead to heavy rainfall that further lead to flooding in various areas; importance should be given to the flood management. The drainage systems should be well:designed to mitigate flooding.
- **Vegetation Cover Improvement** :Planting trees in rows, coastal shelterbelt plantations, mangrove shelterbelt plantations, etc can help break the wind force and increase the water infiltration capacity.
- **Mangrove Plantation** :The ecologically:efficient mangroves should be planted more. India has 3 percent of the world's mangroves cover. The root systems of mangroves help in mitigating tsunamis, soil erosion etc.
- **Saline Embankment** :Along the coast, saline embankments help protect habitation, agricultural crops, and other important installations.
- **Artificial Hills and Levees** :They act as an obstruction to the wind forces and also provide a shelter during floods.

Initiatives by India

- **National Cyclone Risk Mitigation Project (NCRMP):** To reduce the loss of life and properties in the event of future calamities,NCRMP has been launched by the Ministry of Home Affairs, with support from the World Bank.
- **Apada Mitra Scheme:** The NDMA has approved a Centrally Sponsored Scheme focusing on training community volunteers in disaster response in the 30 most flood:prone districts of 25 states in India.
- **Integrated Coastal Zone Management Project:** It aims at coming out with comprehensive plans to manage coastal areas, which will help in cyclone events.

- **Color:Coding of Cyclones By IMD:** The famous color:coding of natural calamities aims at making people aware of the intensity of calamities prior to the hazards. The colors used by IMD are green, yellow, orange, and red.
- **Cyclone Warning Systems:** In order to cater to the needs of Cyclone Warning Services and Marine weather services, there are seven established Cyclone Warning Centers covering the east & west coasts of the country.

Conclusion

- The **Indian subcontinent is one of the worst affected regions** in the world. The subcontinent with a **long coastline of 8041 kilometers is exposed to nearly 10 percent of the world's tropical cyclones.**
- Hence, **India with its various agencies like IMD, NIDM** and others should constantly improve upon its strategies to deal with this severe threat, which is going to become severe in coming years in the wake of climate change.

Source: TOI

PRIVATE INDUSTRY IN SPACE SECTOR

Context

- The Chennai-based space start-up will launch its first rocket Agnibaan Sub Orbital Technology Demonstrator from the Satish Dhawan Space Centre in Sriharikota.

India's share in Space Industry

- India constitutes **2-3%** of the global space economy and is expected to enhance its share to more than **10% by 2030.**
- With over **400** private space companies, India ranks **fifth globally** in no. of space companies.

% of global market share

US	40%
UK	7%
India	2%

Global space economy (in 2021)	USD 386B
India (in 2021)	USD 7.6B

Private players in space industry

- Indian start-ups are taking active interest in the space market, from just 1 start-up in the space sector in 2012 to **189 start-ups in 2023**.
- The funding received by these start-ups reached a total of **\$124.7 Mn in 2023** from \$67.2 Mn in 2021.
- The Skyroot, have launched India's first privately built rocket, **Vikram-S**, into space, with plans to revolutionize satellite launches.

Regulation of the Private sector in the Space industry in India

- **National Space Promotion and Authorisation Centre (IN-SPACE)**: It is an autonomous and single window nodal agency in the Department of Space for the promotion, encouragement and regulation of space activities of both government and private entities.
- **NewSpace India Ltd (NSIL)**: It is mandated to transfer the matured technologies developed by the ISRO to Indian industries.
- All of them are under the purview of the Ministry of Defence.

Steps taken by Government

- **SpaceTech Innovation Network (SpIN)**: SpIN is a one-of-its-kind public-private collaboration for start-ups and SMEs in the space industry.
- **The Indian Space Policy 2023** was notified to implement the vision for unlocking India's potential in the Space sector through enhanced private participation.
- Various schemes to encourage the private sector have been implemented by IN-SPACE, i.e., Seed Fund Scheme, Pricing Support Policy, Mentorship support, Design Lab for NGEs, Skill Development in Space Sector, ISRO facility utilization support, Technology Transfer to Non-Governmental Entities (NGEs).

FDI in space sector

- Under the amended FDI policy, **100% FDI is allowed** in the space sector. The entry route for the various activities are as follows:
 - ♦ **Up to 74% under Automatic route:** Satellites-Manufacturing & Operation, Satellite Data Products and Ground Segment & User Segment.

- ♦ **Up to 49% under Automatic route:** Launch Vehicles and associated systems or subsystems, Creation of Spaceports for launching and receiving Spacecraft.
- ♦ **Up to 100% under Automatic route:** Manufacturing of components and systems/sub-systems for satellites, ground segment and user segment.

Significance of privatization of space sector

- Private companies operate with a profit motive, which drives them to **reduced costs** in space missions and satellite launches.
- Privatization introduces **competition into the space industry**, which can drive efficiency and innovation.
- Private players facilitate the **commercialization of space applications** and services for agriculture, disaster management, urban planning, navigation, and communication, among other sectors.
- private companies have a **greater degree of autonomy** in making decisions, which enables them to take up new projects.
- It helps to generate employment, enable modern technology absorption and make the sector self-reliant.

Challenges

- Space technology is expensive and needs heavy investment. This kind of lucrative power is available only with selected rich corporates, thus can lead to **monopolization of the sector**.
- Building and operating space technology and infrastructure **require specialized technical expertise** and resources.
- **Protecting intellectual property rights (IPR)** is crucial for incentivizing innovation and investment in the space sector.
- Indian private companies in the space sector have to face stiff **competition from the established players** such as SpaceX, Blue Origin etc in the international market.

Way Ahead

- Private entities are now actively involved in crucial aspects of research, manufacturing, and fabrication of rockets and satellites, fostering a vibrant ecosystem of innovation. It is expected to integrate Indian companies into global value chains.

- With this, companies will be able to set up their manufacturing facilities within the country duly encouraging 'Make In India (MII)' and 'Atmanirbhar Bharat' initiatives of the Government.

Source: TH

PROFITS AND POVERTY: THE ECONOMICS OF FORCED LABOUR REPORT :ILO

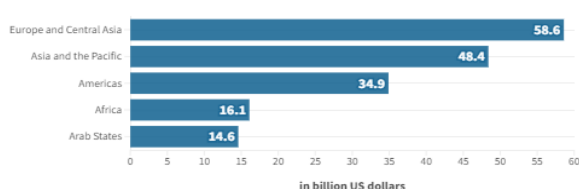
In News

- Recently, the International Labour Organization (ILO) released a report titled "Profits and Poverty: The economics of forced labour".

Major Findings

- **People engaged in forced labour:** There were 27.6 million people engaged in forced labour on any given day in 2021. This figure translates to 3.5 people for every thousand people in the world.
- **Amount of illegal profits:** Forced labour in the private economy **generates US\$236 billion** in illegal profits per year.
 - ♦ The total amount of **illegal profits** from forced labour has risen by **US\$64 billion (37 per cent) since 2014**, a dramatic increase that has been fuelled by both a **growth in the number of people** forced into labour, as well as higher profits generated from the **exploitation of victims**.
 - ♦ Traffickers and criminals are generating close to US\$10,000 per victim, up from US\$8,269 (adjusted for inflation) a decade ago.

Illegal annual profits from forced commercial sexual exploitation



Source: Profits and poverty: The economics of forced labour

THE HINDU

Flourish chart

- **Region wise** :Total annual illegal profits from forced labour are **highest in Europe and Central Asia (US\$84 billion)**, followed by Asia and the Pacific (US\$62 billion), the Americas (US\$52 billion), Africa (US\$20 billion), and the Arab States (US\$18 billion).

- **Sector wise** : **Forced commercial sexual exploitation** accounts for more than **two-thirds (73 per cent) of the total illegal profits**, despite accounting for only 27 per cent of the total number of victims in privately imposed labour.

- ♦ After forced commercial sexual exploitation, the sector with the highest annual illegal profits from forced labour is industry, at US\$35 billion, followed by services (US\$20.8 billion), agriculture (US\$5.0 billion), and domestic work (US\$2.6 billion).

Concerns

- People in forced labour are **subject to multiple forms of coercion**, the deliberate and systematic withholding of wages being amongst the most common.
- **Forced labour perpetuates cycles of poverty** and exploitation and strikes at the heart of human dignity.
- Forced labour cases can often be traced back to recruitment abuses as well as the apparent importance of unlawful recruitment fees and costs as a source of illegal profit from forced labour.

Suggestions

- The **international community must urgently** come together to take action to end this injustice, safeguard workers' rights, and uphold the principles of fairness and equality for all.
- It recommends **strengthening legal frameworks**, providing training for enforcement officials, extending labour inspection into high-risk sectors, and better coordination between labour and criminal law enforcement.
- Enforcement actions must be part of a **comprehensive approach** that prioritizes addressing root causes and safeguarding victims.
- **Promoting fair recruitment processes** is also crucial
- Ensuring the freedom of workers to associate and to bargain collectively is also essential to building resilience to the risks of forced labour.

Source:TH

WORLD AIR QUALITY REPORT 2023

Context

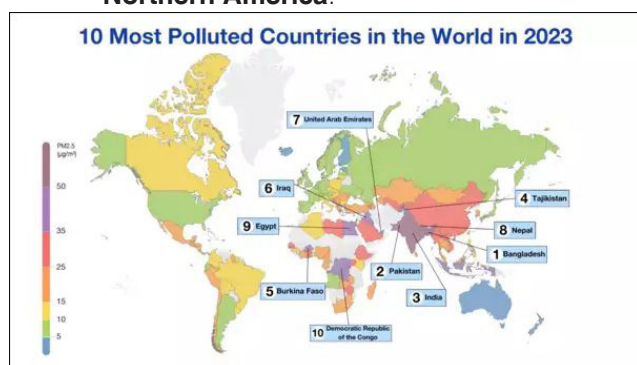
- IQAir has released the **6th edition** of the **World Air Quality Report 2023**.

About

- IQAir is a Swiss technology company.
- The data in report was gathered from more than 30,000 air quality monitoring stations across 7,812 locations in **134 countries** and regions.

Major Findings of the Report

- A total of **124** (92.5%) out of 134 countries and regions **exceeded the WHO annual PM2.5 guideline value of 5 µg/m³**.
- **Top Polluted Countries:** Top 5 most polluted countries in the world in 2023 included: **Bangladesh, Pakistan, India, Tajikistan and Burkina Faso**.
 - ♦ For the first time in the history of this report, **Canada was the most polluted country in Northern America**.



- **Third Most Polluted:** **India** was declared as the third-most polluted country in 2023, after **Bangladesh and Pakistan**.
 - ♦ India has an average annual PM2.5 concentration of 54.4 micrograms per cubic metre.
 - ♦ 96% of the Indian population experience PM2.5 levels **more than seven times** the WHO annual PM2.5 guideline.
- **Most Polluted Cities:** In the top 50 most polluted cities in the world, **42 cities were in India**.
 - ♦ **Begusarai** was the most polluted metropolitan area of 2023, followed by **Guwahati and then Delhi**.
- **Delhi:** Delhi has become the world's **most polluted capital city** and saw an increase in PM2.5 concentration from 89.1 to 92.7 micrograms per cubic meter over between 2022 - 23.
- **Least Polluted Cities of India:** Silchar in Assam (7th), Aizawl in Mizoram (8th) and Damoh in Madhya Pradesh (15th) were the least polluted cities in the central and south Asia region.

- **Countries Meeting WHO standards: Seven countries** which met the WHO annual PM2.5 guideline (annual average of 5 µg/m³ or less) included **Australia, Estonia, Finland, Grenada, Iceland, Mauritius, and New Zealand**.

WHO Air Quality Guidelines

- The first release of the guidelines was in **1987**.
- The WHO Air quality guidelines are a set of evidence-based recommendations of limit values for specific air pollutants developed to help countries achieve air quality that protects public health.
- The WHO Air quality guidelines recommend levels and interim targets for common air pollutants: PM, O₃, NO₂, and SO₂.

Pollutant	Averaging Time	2005 AQGs	2021 AQGs
PM _{2.5} , µg/m ³	Annual	10	5
	24-hour ^a	25	15
PM ₁₀ , µg/m ³	Annual	20	15
	24-hour ^a	50	45
O ₃ , µg/m ³	Peak season ^b	-	60
	8-hour ^c	100	100
NO ₂ , µg/m ³	Annual	40	10
	24-hour ^a	-	25
SO ₂ , µg/m ³	24-hour ^a	20	40
CO, mg/m ³	24-hour ^a	-	4

Air Pollution and Its Concerns

- When harmful substances (pollutants) – particles, gases, or matter – are released into the air and reduce its quality, the air is polluted.
- **Common air pollutants include:** Particulate Matter (PM), Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), Ozone (O₃), Carbon Monoxide (CO), Volatile Organic Compounds (VOCs), Lead etc.
- **Concerns:**
 - ♦ **Health Related:** Respiratory issues, cardiovascular problems, reduced lung function.
 - ♦ **Environmental:** Ecosystem damage, Biodiversity loss, Water pollution, climate change, crop damage.
 - ♦ **Healthcare Costs:** The health impacts of air pollution result in increased healthcare costs, including expenses related to the treatment of respiratory and cardiovascular diseases.

Steps Taken by Government of India to combat Air Pollution

- **National Clean Air Programme (NCAP):** Launched in 2019, NCAP is a comprehensive initiative with the goal of reducing air pollution in identified cities and regions across India.

- ♦ The program focuses on improving air quality monitoring, implementing stricter emission standards, and promoting public awareness.
- **Bharat Stage VI (BS-VI) Emission Standards:** The government implemented BS-VI emission standards for vehicles nationwide in 2020.
 - ♦ These standards aim to reduce vehicular emissions by mandating the use of cleaner fuel and more advanced emission control technologies.
- **Pradhan Mantri Ujjwala Yojana (PMUY):** The PMUY scheme aims to provide clean cooking fuel to households by promoting the use of liquefied petroleum gas (LPG) as an alternative to traditional biomass-based cooking methods.
- **FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) Scheme:** The FAME scheme promotes the adoption of electric and hybrid vehicles to reduce air pollution caused by vehicular emissions.
 - ♦ Incentives are provided to both manufacturers and consumers to encourage the use of electric vehicles.
- **Green Initiatives for Sustainable Habitat (GRIHA):** GRIHA is an initiative to promote sustainable and environmentally friendly practices in the construction and operation of buildings.
 - ♦ It encourages the use of energy-efficient technologies and materials to reduce pollution.
- **Waste Management Programs:** Proper waste management is crucial to prevent the burning of waste, which contributes to air pollution.
 - ♦ Various waste management initiatives, including the Swachh Bharat Abhiyan, aim to address solid waste issues and promote cleaner disposal methods.
- **Commission for Air Quality Management:** The Commission has been set up for Air Quality Management in the National Capital Region and Adjoining Areas for better coordination, research, identification, and resolution of problems surrounding the air quality index.
- **Graded Response Action Plan (GRAP):** It is a set of emergency measures that kick in to prevent further deterioration of air quality once it reaches a certain threshold in the Delhi-NCR region.
- **Promotion of Public Transportation:** Encouraging the use of public transportation, such as buses and metro systems, helps reduce the number of individual vehicles on the road, consequently lowering vehicular emissions.

Source: IE

NEWS IN SHORT

POTTI SRIRAMULU

Context:

- Tributes were recently paid to **Sri Potti Sriramulu on his 123rd birth anniversary.**

Sri Potti Sriramulu



- Sriramulu **took part in the Indian Independence Movement** and was imprisoned for participating in the 1930 Salt Satyagraha.
- Between 1941 and 1942, he **participated in the individual satyagraha and the Quit India movement** and was imprisoned on three occasions.
- He was a **devout follower, avid supporter and devotee of Mahatma Gandhi**. He also joined the Gandhi Ashram established by Yerneni Subrahmanyam, in Komaravolu.
- **He undertook three fasts**, during 1946:1948, in support of Dalit rights to enter holy places, such as the temples of Nellore.
 - ♦ He fasted in support of **Dalit entry rights to the Venu Gopala Swamy Temple** in Moolapeta, Nellore, rights which were eventually secured.

Source:TH

KETAMINE

Context

- Elon Musk has admitted using the **prescription of ketamine** to manage a negative chemical state similar to depression.

About

- Ketamine is used to **treat pain and depression** and in heavy doses is used as a **sedative**.

- It also carries risks, including **hallucinations and potential overdose** leading to unconsciousness and slowed breathing.
- Ketamine is often **administered in a medical environment**, or its close variant, Spravato, is available as a nasal spray specifically for treatment-resistant depression.

Source: LM

NORWAY TO INVEST ALMOST HALF OF \$100 BILLION UNDER EFTA

Context

- **Switzerland and Norway are likely to contribute most of the \$100 billion free trade pact** India recently signed with EFTA.

About

- India signed a **four-nation trade pact with EFTA countries**, on March 10, 2024, which **aims to attract \$100 billion and to create one million jobs in 15 years** in exchange for tariff concessions for their pharma, chemical and minerals.

India: EFTA pact: Trade and Economic Partnership Agreement (TEPA)

- **Signed on:** March 10, 2024
- **Involves:** India and EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.
- **Goal:** Promote investments and exports, particularly in India's IT, audio:visual sectors, and skilled professional movement.
- **Investment target:** The EFTA states shall aim to increase FDI into India by \$50 billion within 10 years, and another \$50 billion in the five years thereafter.
- **Additional provisions:** For the first time, the FTA also included a chapter on commitments to human rights and sustainable development.

Potential benefits for India:

- **Tariff reduction:** After the treaty comes into effect, the EFTA nations will see a reduction in tariffs on most industrial goods exported to India, such as pharmaceutical products, machinery, watches, fertilisers, medicine, chemical products and others.
- **Increased trade and investment:** EFTA investment already stood at \$10.7 billion in 2022 and Switzerland is India's largest trading partner

in this bloc of nations, followed by Norway.

- **Job creation:** As per the newly signed agreement, the EFTA states shall aim to increase FDI into India by \$100 billion within 15 years. This could facilitate the **generation of one million direct jobs in the country**.
- **Access to the EFTA markets:** Markets of these four countries will be opened for Indian products, thereby enhancing the export avenues for Indian products.
- **Services sector:** The services sector also forms a vital part of this trade agreement. The agreement would help stimulate services exports in areas such as information technology and facilitate the movement of key skilled personnel.

Source: TH.

LAB NETWORK TO TEST FOOD FOR PATHOGENS

Context:

- Recently, the Food Safety and Standards Authority of India (FSSAI), has taken the **'Lab Network To Test Food For Pathogens'** initiative to ensure food safety in the country.

About the Initiative

- It is a network of 34 microbiology labs across the country **to test food products for microbial contamination**.
- The labs are equipped to test food products for 10 pathogens, **including E. coli, salmonella, and listeria**. These labs test food samples collected during routine surveillance for microbes.
- It aims to help in the **early detection of microbial contamination** in food products, thereby preventing foodborne illnesses and ensuring the health and well-being of the public.

Need for the Initiative

About FSSAI:

- It was established under **Food Safety and Standards (2006)**, as an autonomous body under the **Ministry of Health and Family Welfare (MoH&FW)**.
- It is responsible for **promoting and protecting public health** through various regulations and supervisions of food safety.
- It handles food-related issues including ensuring the safe availability of food for human consumption.

- Food poisoning and diarrhoea have become common occurrences in India.
- Data from the **National Centre for Disease Control (NCDC)** shows that there were **over 1,100 outbreaks** of acute diarrhoeal disease and nearly 550 outbreaks of food poisoning in the country **in the last four years**.
- Currently, **none of the state food safety labs** are equipped to test for pathogens as they require maintaining live reference samples, expensive reagents, and a microbiologist.

Initiatives of FSSAI

- **Eat Right Movement campaign:** To ensure safe, healthy and sustainable food for all Indians.
- **Clean Street Food:** Providing training to street food vendors and spreading awareness among them regarding the violations of the FSS Act.
- **Diet4Life:** Spreading awareness about the different types of metabolic disorders and how to avoid them.
- **Save Food, Share Food, Share Joy:** FSSAI promoted and encouraged people to avoid food wastage and promote the donation of food.
- **Heart Attack Rewind:** It is a mass media campaign of FSSAI to support FSSAI's target of eliminating trans fat in India by the year 2022.

Source: IE

THE STATE OF THE GLOBAL CLIMATE 2023: WMO

Context

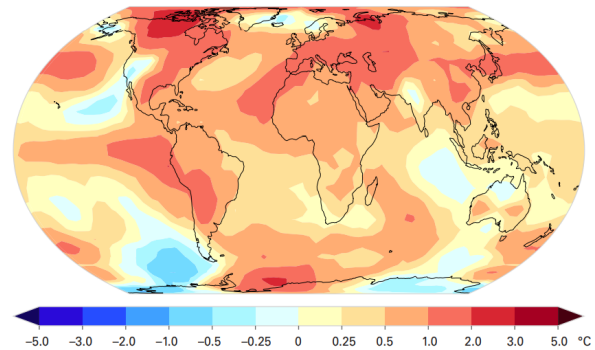
- Recently, the World Meteorological Organization (WMO) released the 'State of the Global Climate' for 2023.

About the State of the Global Climate 2023

Key Findings:

- **Hottest Year on Record:** The report confirms that 2023 was the warmest year on record, with the global average near-surface temperature at 1.45°C above the pre-industrial baseline.
 - ♦ It is significantly higher than the 1.29°C increase from pre-industrial times recorded in 2016.
 - ♦ The last ten years, 2014 to 2023, was the warmest decade ever.

- **Record-Breaking Changes:** Records were broken for greenhouse gas levels, surface temperatures, ocean heat and acidification, sea level rise, Antarctic sea ice cover, and glacier retreat.
 - ♦ The observed concentrations of **three main greenhouse gases — carbon dioxide, methane, and nitrous oxide** — also reached new records in 2022.



- **Sea Level Rise:** Ocean heat content reached its highest level in the 65-year observational record.
 - ♦ Global mean sea level reached a record high. The rate of sea level rise in the past ten years (2014–2023) has more than doubled since the first decade of the satellite record (1993–2002).
- **Extreme Weather Events:** Heatwaves, floods, droughts, wildfires, and rapidly intensifying tropical cyclones caused significant disruption and economic losses.
 - ♦ **Wildfires** in Hawaii, Canada and Europe led to loss of life, the destruction of homes and large-scale air pollution.
 - ♦ **Flooding** associated with extreme rainfall from **Mediterranean Cyclone Daniel** affected Greece, Bulgaria, Türkiye, and Libya with particularly heavy loss of life in Libya.
- **Socio-Economic Impact:** **Food security, population displacement** and impacts on vulnerable populations continue to be of mounting concern in 2023, with **weather and climate hazards** exacerbating the situation in many parts of the world.
- **Cost of Inaction:** The report emphasises that the cost of climate inaction is higher than the cost of climate action.
 - ♦ The Secretary-General of WMO stated that 'scientific knowledge about climate change has existed for more than five decades, and yet we missed an entire generation of opportunity'.

World Meteorological Organisation (WMO)

- It is an **intergovernmental organization** with a membership of 193 Member States and Territories.
- It originated from the **International Meteorological Organization (IMO)**, the roots of which were planted at the 1873 Vienna International Meteorological Congress.
- It was established by the ratification of the **WMO Convention in 1950**, WMO became the specialised agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences.
- The Secretariat, **headquartered in Geneva**, is headed by the Secretary-General.
- Its supreme body is the World Meteorological Congress.

Source: IE

MUTUAL FUND STRESS TEST**In News**

- Mutual fund (MF) houses have started releasing a **Sebi stress test report**, mentioning the number of days they will require to **liquidate 50% and 25%** of their mid-and-small-cap schemes portfolio.

What is a stress test?

- It **determines the time** within which an **investor can recover investment** in the event of a downturn in the equity market and a subsequent surge in investor redemptions.
- Mutual fund companies conduct these stress tests to assess the liquidity of small and midcap portfolios.
- As part of the test, they check how quickly a fund manager can sell small and mid-company stocks if many investors put in requests to redeem their units.

Importance

- It provides investors with insights into how their mutual fund investments might perform under adverse market conditions.

- By understanding the potential risks and vulnerabilities in the fund's portfolio, investors can make more informed decisions and manage their expectations regarding potential losses during market downturns.

Source:ET

TOBACCO BOARD**In News**

- The Tobacco Board has authorised a crop size of 100 million kg for Karnataka during the year 2024-25.

About Board

- the Government of India under the Tobacco Board Act of 1975, established the **Tobacco Board**, in place of the Tobacco Export Promotion Council.
- It came into existence from 1-1-1976 and opened its headquarters at **Guntur in Andhra Pradesh, India**.
- **Main Activities** : Constant monitoring of the **Virginia tobacco market**, both in India and abroad and ensuring fair and remunerative prices to the growers and reducing wide fluctuations in the prices of the commodity.
 - ◆ Recommending to the Central Government the minimum prices to be fixed for exportable Virginia tobacco with a view to avoiding unhealthy competition amongst the exporters

Do you know ?

- **Tobacco is one of the important commercial crops** grown in India.
- During 2022-23, India has a prominent place in the production of tobacco in the world.
- During 2021, **India stands as 2nd largest country** in production (FAO Stat data, 2021) and **4th largest exporter of unmanufactured tobacco** in the world (ITC Trademap data 2021). India produces different styles of Flue Cured Virginia tobacco, which vary in their physical and chemical characteristics.

Source:TH

