

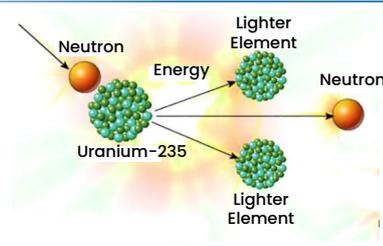
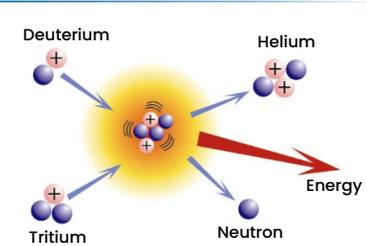
NEWS TODAY

China detonated a Non-Nuclear Hydrogen Bomb

Different from the traditional atomic and hydrogen bombs, the 2-kg device reached temperatures exceeding 1,000 degrees Celsius marking a major step in the development and use of future weapons.

Key Features of the Non-Nuclear Hydrogen Bomb

- **Chemical Reaction:** It deploys chemical reaction with Magnesium Hydride to create a powerful explosion without nuclear materials.
 - ⊕ Hydrogen bomb, on the other hand, is primarily based on the nuclear fusion process.
- **Uses Magnesium Hydride:** Unlike Hydrogen bombs that uses radioactive hydrogen isotopes like deuterium or tritium as fuel.
 - ⊕ Magnesium Hydride is a silvery powder that acts as a solid-state hydrogen storage material.
 - ⊕ When ignited it releases hydrogen that rapidly mixes with air and on reaching explosive limits, the gas ignites creating a self-sustaining combustion cycle.
- **Scale of Damage:** Generates only about 40% of Trinitrotoluene's blast force, but demonstrates greater thermal damage radius with heat output enough to melt materials such as aluminium alloys.
 - ⊕ It requires minimal ignition energy and has the ability to generate intense, sustained heat without producing radiations.

Atomic Vs Hydrogen Bombs		
Parameters	Atomic Bombs	Hydrogen Bombs (Thermonuclear Bombs)
Type of Reaction	Nuclear Fission	Nuclear Fusion
Process	<ul style="list-style-type: none"> ■ Splitting of nuclei of heavy atoms into smaller, lighter nuclei releasing excess energy. ■ Achieves fission either spontaneously or through the use of neutrons. 	<ul style="list-style-type: none"> ■ Fusing of two light elements into a heavier one releasing energy. ■ Generates more energy than atomic Bombs.
Fuel Used	Uranium-235, Plutonium-239	Deuterium, Tritium (Hydrogen isotopes)
Reaction		

The price of 24-carat gold surged to Rs 1 lakh per 10 grams for the first time in India

Key Global Factors Driving Price Surge

- **Geopolitical Tensions:** Rising global conflicts and economic uncertainties have led investors to flock to gold, which is seen as a safe-haven asset.
- **US Federal Reserve Rate Cuts:** With falling interest rates, appeal of gold increases. As a non-yielding asset, gold becomes more attractive when the opportunity cost of holding cash or bonds drops.
- **Weakening of US Dollar:** A declining dollar makes gold cheaper for buyers using other currencies, thereby boosting demand.
- **Central Bank Accumulation:** Central banks, especially in Asia, are aggressively purchasing gold to reduce dependency on the US dollar and diversify reserves.

India's Gold Market

- India is the world's 2nd largest consumer of gold, just after China. In 2024, India's gold demand reached 802.8 tonnes.
- Approximately 85% of India's gold is imported, making domestic prices highly sensitive to international trends.

Reasons for High Gold Demand in India

- **Financial Security:** Gold is trusted as a long-term store of value, especially during inflation or market instability.
- **Cultural & Religious Significance:** Gold is considered auspicious and forms an essential part of festivals like Diwali, Dhanteras, and Akshaya Tritiya.
- **Wedding Season Boost:** Gold purchases spike during wedding season, with jewelry being a traditional and prestigious gift for brides.
- **In rural areas** many people lack access to banks/stock markets. For them, gold serves as a trusted and liquid asset for saving, investing, or even borrowing.

Gold Reserves India

- **Gold Ore:** largest resources in terms of gold ore (primary) are located in Bihar (43%) followed by Rajasthan (24.92%), Karnataka (20%).
- **Metal Content:** In terms of metal content, Karnataka remained on top followed by Rajasthan, Andhra Pradesh, and Bihar.

World

- **Major Holders of Gold Reserves:** United States, followed by Germany and Italy.
- **Major Exporters:** Germany followed by European Union and Switzerland (World Integrated Trade Solution, 2023).

Terror attack in Pahalgam, Jammu and Kashmir (J&K)

A terror attack occurred in the scenic 'Baisaran meadows' of Pahalgam often referred to as 'mini-Switzerland', resulting in loss of civilian lives.

- **The Resistance Front (TRF)** a proxy outfit of **Lashkar-e-Taiba**, a proscribed terrorist organisation listed under the UAPA has claimed responsibility for the attack.

Reasons for Persistence of Terrorism in J&K

- **State-sponsored Terrorism:** Pakistan has been accused of supporting terror organizations operating in J&K with providing a **safe haven, logistical support, training etc.**
- **Porous Borders:** Difficult terrain along Line of Control makes it difficult to trace & prevent **infiltration of militants & weapons.**
- **Religious and Ethnic Tensions:** The communal mix of Muslims, Hindus, & various tribal groups are exploited by terror groups to create **communal unrest.**
- **Over Ground Workers (OGWs):** Aid in **sustaining militancy** through fund management, recruitment, propaganda, etc.
 - ⊕ **OGWs** are individuals/groups that provide **non-combat assistance** like logistical support, intelligence to militant groups **without directly participating in armed activities.**

Way Forward

- **Strengthening Border Security:** Strategic deployment of forces, strengthening border infrastructure, using technology etc. (**Madhukar Gupta Committee Recommendations**)
- **Strengthening Political institutions:** Empowering local governance and representatives.
- **Community involvement:** Confidence Building Measures like **civilian-military cooperation** (e.g. Village Defence Guards); counter-radicalization & rehabilitation.

India's Counter Terrorism Measures in J&K

- **Comprehensive Integrated Border Management System:** To improve capability of BSF in detecting & controlling cross border crimes like illegal infiltration.
- **Operation All-Out (2017):** Aimed at **neutralizing top militant commanders**, especially from LeT, JeM, etc.
- **Back to Village:** Promote governance at grassroots level to win public trust & reduce alienation.
- **Skill Development:** Schemes like **Himayat & Udaan.**

Union Environment Ministry notifies draft Greenhouse Gases Emission Intensity (GEI) Target Rules, 2025

Rules set **GEI Targets** for **four energy-intensive sectors** (aluminium, cement, chlor-alkali, and pulp & paper) ensuring emission cuts.

- **GEI means** Greenhouse Gases Emission Intensity in **tCO2e/equivalent** output or product.

Key Highlights of the Rules

- **GEI Targets Calculation:** As per **Bureau of Energy Efficiency's methodology**, specific to each **obligated entity** as listed in the Schedule.
- **Compliance Requirements for Obligated Entities:** They must **meet GEI targets annually** as per the **Carbon Credit Trading Scheme, 2023** (see box).
 - ⊕ May also purchase **carbon credit certificates** from the **Indian Carbon Market (ICM)** to offset shortfalls.
- **Environmental Compensation:** To be imposed by the **Central Pollution Control Board (CPCB)**, equal to **twice of the average price at which carbon credit certificate** is traded in the compliance year, payable within **90 days.**
- **Legal Backing:** Non-compliance or rule violations is addressed under the **Environmental Protection Act, 1986.**

Significance of the Rules



Attainment of India's Nationally Determined Contributions (NDCs):
Reduce Emissions Intensity of its GDP by 45% by 2030 from 2005 levels.



Aligns with Article 6 of the Paris Agreement: Outlines tools and mechanisms for countries to voluntarily cooperate in meeting their NDCs through the **carbon market.**



Adoption of Sustainable and Cutting-Edge Technology: Across traditionally high emission industries.

About Carbon Credit Trading Scheme, 2023.

- **Genesis:** Notified in **2023** under the **Energy Conservation Act, 2001**, to create a **structured carbon market** in India.
- **Objective:** Reduce, avoid, or remove greenhouse gas emissions by enabling the trading of **Carbon Credit Certificates (CCSs).**
- **Mechanisms under CCTS**
 - ⊕ **Compliance Mechanism:** For **obligated entities** who earn CCSs on **complying** with the prescribed GHG emission intensity reduction norms.
 - ⊕ **Offset Mechanism:** For **Non-obligated entities** who can register their projects that reduce, or remove emissions to earn CCSs.

IMF releases “World Economic Outlook (WEO): A Critical Juncture Among Policy Shift” Report

The report **cuts global growth forecasts to 2.8%** (6.2% for India) from its earlier January 2025 update due to **trade tensions and policy uncertainty** and recommends policies favouring **healthy ageing** enabling participation of older individuals in labour force.

Key Observations

- **Economies worldwide are aging rapidly:** Due to **declining fertility** and **rising life expectancy** crossing their **demographic turning point** and shifting from **demographic dividend to demographic drag**.
 - ⊕ The **average age of the world’s population is projected to increase by 11 years** between 2020 and the end of the century.
- **Healthy Ageing:** Alongside increase in longevity, the **functional capacity of older individuals** has improved over time.
 - ⊕ 70 year old in 2022 had the same **cognitive ability** as a 53 year old in 2000.

Benefits of Healthy Ageing

- **Impact on Global GDP Growth:** Healthy aging is projected to **add 0.4% point** to global average GDP growth over 2025–50.
 - ⊕ The contribution from **India** would be large as the share of workers aged 50 and older is to grow faster in that period.
- **Impact on Labor Force Participation:** **Targeted health policies** enable older workers to increase their labor force participation rates.

Policy Recommendations on Healthy Ageing

- **Comprehensive Approach:** Combining pension reforms, training, workplace adaptations, with health-oriented interventions to **increase effective retirement ages**.
- **Reducing labor force participation gaps:** Fostering **higher female labor force participation** through improved work-life balance, affordable childcare, etc., to counter demographic headwinds.

ISRO’s SpaDeX mission completes second docking of satellites

The docking technology, **indigenously developed** by ISRO, is known as the **Bharatiya Docking System**.

- In-space docking technology is essential when multiple rocket launches are required to achieve common mission objectives.

About SpaDeX Mission

- It is a **technology demonstrator mission** for the demonstration of **in-space docking** (Joining of two fast-moving satellites in space) using two small spacecrafts launched by PSLV C60.
 - **Primary Objective:** To develop and demonstrate the technology needed for **rendezvous, docking, and undocking** of two small spacecrafts {SDX01 (Chaser) and SDX02 (Target)} in a **low-Earth circular orbit**.
 - SpaDeX spacecrafts were designed and realized by the **UR Rao Satellite Centre (URSC)** with the support of other ISRO centers.
 - ⊕ URSC, Bengaluru, formerly known as ISRO Satellite Centre (ISAC) is the lead centre for building satellites and developing associated satellite technologies.

Significance of the Mission

- **Strategic Space Capability:** Orbital docking is a crucial technology for **future human spaceflight, satellite servicing missions**, and establishing **Bharatiya Antariksh Station**.
- **National Advancement:** The mission made **India the fourth country in the world to achieve satellite docking in space**, joining the ranks of the US, Russia, and China.
- **Enabling Future Space Missions:** It will support missions like Chandrayaan-4 without the support of GNSS from Earth.



Also In News



Standing Deposit Facility (SDF)

The Standing Deposit Facility (SDF) marks three years since its introduction as **Reserve Bank of India’s liquidity management framework**.

About SDF

- It is a monetary tool that **absorbs liquidity** from commercial banks **without collateral**. The government does not need to give securities to banks for deposits.
- **Features:**
 - ⊕ SDF **replaced** the Fixed Rate Reverse Repo as the Liquidity Adjustment Facility (LAF) corridor’s floor.
 - ⊕ SDF is an **overnight liquidity absorption mechanism** with the flexibility for the RBI to increase its duration.
 - ⊕ Any entity that is **eligible for LAF** can use this facility.
 - ⊕ SDF will be available **every day**, including holidays and weekends.



Tobacco

The Government has amended ‘Tobacco Board Rules, 1976’, extending the validity of registration for Virginia tobacco growers from **1 year to 3 years**.

About Tobacco

- Tobacco is believed to have originated from South America. There are more than 60 species of tobacco.
- **Ideal Growing Conditions:**
 - ⊕ **Temperature:** 20°–27°C
 - ⊕ **Rainfall:** Minimum 500 mm; not suitable above 1200 mm
 - ⊕ **Soil:** Prefers sandy or sandy loam
 - ⊕ Frost-free period of 90 to 120 days.

Production in India

- **Status:** India is **2nd largest producer** of tobacco after China & the **4th largest exporter** of unmanufactured tobacco.
- **Major States:** Predominantly cultivated in **Gujarat** (30% of production), **Andhra Pradesh, Karnataka, UP & Bihar**.



Vulture Conservation and Breeding Centre (VCBC)

34 critically endangered vultures were transferred from the Vulture Conservation Breeding Centre (VCBC) in Pinjore (Haryana), to Maharashtra.

About VCBC, Pinjore

- **Genesis:** Established in 2001 with the UK Government's 'Darwin Initiative for the Survival of Species' fund.
- **Partners:** Haryana Forest Department and the Bombay Natural History Society (BNHS).
- **Aim:** To save three species of vultures, the White-backed, Long-billed and Slender-billed.
- **Location:** Edge of the Bir Shikargaha Wildlife Sanctuary, Haryana.
- **Achievement:** Confirmed that diclofenac, a non-steroidal anti-inflammatory drug, was the main cause of vulture mortality.



Davis Strait Proto-Microcontinent

Scientists have discovered a hidden continent beneath Greenland's ice, called the Davis Strait Proto-Microcontinent.

- Proto-Microcontinents are "regions of relatively thick continental lithosphere separated from major continents by a zone of thinner continental lithosphere."

Davis Strait Proto-Microcontinent

- It is a newly identified submerged microcontinental fragment located beneath the Davis Strait.
- ⊕ Davis Strait connects Labrador Sea and Baffin Bay.
- Researchers believe this landmass was partially separated during ancient tectonic shifts but did not completely detach from the surrounding continents.
- As a result, it became stranded beneath the seafloor, buried under layers of sediment and water.



Aadhaar

Union Agriculture Ministry has made Aadhaar authentication mandatory for individuals and farmer groups to avail benefits under the e-NAM (National Agriculture Market) scheme.

- **Section 7 of the Aadhaar Act, 2016** provides for Aadhaar based authentication for availing any subsidy, benefit or service whose expenditure is incurred from the Consolidated Fund of India.

About Aadhaar

- **Features:** 12 digit individual identification number serving as proof of identity and address (Not a proof of citizenship or domicile); contains both biometric and demographic information.
- **Issued By:** Unique Identification Authority of India (UIDAI).
- **Eligibility:** Resident of India (irrespective of age and gender).



Taj Trapezium Zone (TTZ)

Supreme Court directed NEERI (National Environmental Engineering Research Institute) to assess the impact of neighboring glass industry on Taj Mahal.

- SC had in the past issued orders from time to time for TTZ (E.g., ban of coal/coke in industries in TTZ, 1996).

About TTZ

- **Location:** 10,400 sq km area (shaped like a trapezoid) around Taj Mahal to protect it from pollution.
- **Coverage:** Three World Heritage Sites- Taj Mahal, Agra Fort, and Fatehpur Sikri.
- **Taj Trapezium Zone Pollution (Prevention and Control) Authority:** Constituted under the Environment Protection Act, 1986.
- **Categories of Industries:** Red, Green, Orange, and White.



Mehrgarh Archeological Site

A new radiocarbon study using Accelerator Mass Spectrometry (AMS) dating revised the age of farming settlement in Mehrgarh, from 8000 BCE to 5200 BCE.

About Mehrgarh Archeological Site

- It is a Neolithic site located at the mouth of Bolan Pass in present-day Balochistan, Pakistan.
- Evidence of continuous occupation for more than 3 millennia prior to the Harappan civilization.
- **Key Features:**
 - ⊕ **Early farming village:** Domestication of wheat and barley, and cattle.
 - ◆ **Earliest known example of cotton** in the Old World.
 - ⊕ Found well-preserved remains of mud brick structures, burials, Pottery (called Togau) etc.



Arun-3 Hydroelectric Project

India-Nepal inaugurated commencement of electromechanical works at the Arun-3 Hydroelectric Project to ensure its timely completion.

About Arun-3 Hydroelectric Project

- **Location:** Arun River (Tributary of Kosi) in Sankhuwasabha District of Eastern Nepal.
- **Features:** 900 MW Run-of-River scheme.
- **Operation:** SJVN Arun-III Power Development Company (SAPDC), is developing it on Build-Own-Operate-Transfer basis for a period of 30 years including five years construction period.
 - ⊕ SAPDC is a fully owned subsidiary of India's Satluj Jal Vidyut Nigam, showcasing significant collaboration between SJVN and the Government of Nepal.

Place in News



Saudi Arabia (Capital: Riyadh)

- The Indian PM visited Saudi Arabia and co-chaired the 2nd meeting of the India-Saudi Arabia Strategic Partnership Council (SPC).

Political Features

- It is an absolute Monarchy located in the Middle East.
- Saudi Arabia is the largest country in the Arabian Peninsula, occupying nearly four-fifths of its total area.
- **Bordering states:** Iraq, Jordan, Kuwait, Oman, Qatar, UAE, Yemen; **Maritime** (Persian Gulf, Red Sea, Gulf of Aqaba)
- Home to Islam's 2 holiest shrines in Mecca and Medina.

Geographical Features

- It is the largest country in the world without a river.
- **Climate:** Harsh, dry desert with temperature extremes.
- **Natural resources:** Oil, natural gas, iron ore etc.



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



PRAYAGRAJ



PUNE



RANCHI