

NEWS TODAY

The Centre has made "Thematic Hub" operational for India's Quantum Revolution

Four thematic hubs were established under the **National Quantum Mission (NQM)**.

- **Activities in these T-Hubs** would include technology development, human resource development, entrepreneurship development & industry collaborations and international collaborations
- **The Indian Institute of Technology (IIT) Kanpur** had been designated as a management coordinating centre for the hubs.

Key technology verticals of T-Hubs

- **Quantum Computing:** Quantum computers use special units called **qubits** to store and process information.
 - ⊕ Unlike regular computers, where bits can only be 0 or 1, **qubits can be both 0 and 1 at the same time.**
 - ⊕ Led by the **Indian Institute of Science (IISc), Bengaluru.**
- **Quantum communication:** It involves encoding information in quantum states, **typically of photons (light particles)**, and transmitting these states over a distance.
 - ⊕ Led by **IIT, Madras.**
- **Quantum Sensing and Metrology:** Quantum sensing uses quantum systems to make **atomic-scale measurements.**
 - ⊕ Quantum Metrology seeks to create **highly sensitive and high-resolution measurements of physical conditions.**
 - ⊕ Led by **IIT, Bombay.**
- **Quantum Materials and Devices:** It involves investigating **structural, electrical and magnetic properties of various nanoscale systems**, in a wide variety of materials.
 - ⊕ Led by **IIT, Delhi.**

About National Quantum Mission (NQM)

- **Aim:** To seed, nurture and scale up scientific and industrial R&D and create a vibrant & innovative ecosystem in Quantum Technology (QT).
- **Implementing agency:** **Department of Science & Technology (DST)** under the Ministry of Science & Technology.
 - ⊕ NQM is one of the nine missions under the **Prime Minister's Science Technology Innovation Advisory Council (PMSTIAC).**
- **Mission duration:** 2023 to 2031.
- **Targets:** Developing intermediate-scale quantum computers, Satellite-based secure quantum communications, etc

United Nations Conference on Trade and Development (UNCTAD) Released 'A World of Debt Report 2024'

Public debt can drive development by funding critical expenditures, but excessive debt growth poses challenges, especially for developing nations.

- **UNCTAD's 2024 report** warns of rising debt risks, urging immediate global action to ensure stability.

Key Findings of the Report

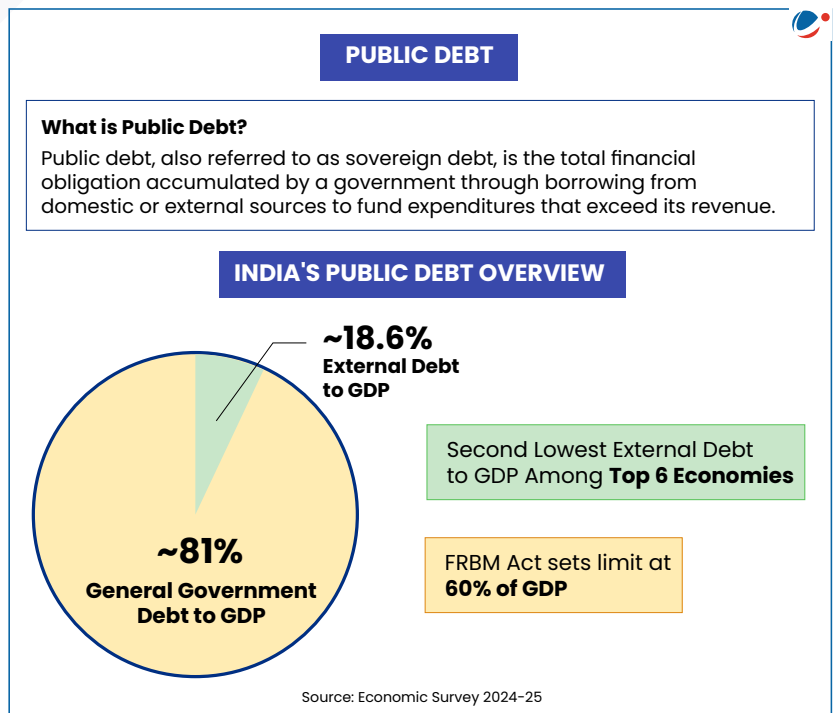
- **Global Debt Surge:** Public debt reached **\$97 trillion** in 2023, with **developing countries' debt rising twice as fast as developed nations.**
 - ⊕ **India's public debt** was recorded at **2.9 trillion US dollars.**
- **Debt Servicing Strains:** 54 developing nations **spend more on interest payments** than on social sector.
- **Unequal Financial System:** Developing nations **pay 2 to 12 times more in interest** than developed countries.

Challenges Posed by the Rising Global Public Debt

- **Debt Overhang:** High debt levels can stifle economic growth by discouraging investment and consumption.
- **Liquidity Challenge:** The withdrawal of nearly \$50 billion by private creditors from developing countries has worsened liquidity constraints.
- **The creditor base with West-dominated institutions** (private, multilateral, and bilateral creditors) makes debt restructuring expensive.

Recommendations

- **Debt restructuring mechanisms** to address coordination challenges.
- **Expand contingency financing** to prevent debt crises.
- **Enhance participation of developing countries** in global financial governance.



CSIR-National Botanical Research Institute (NBRI) has developed the world's First Pink Bollworm-Resistant GM Cotton

Genetically Modified (GM) cotton, also known as Bt cotton, is developed by incorporating a gene from the bacterium *Bacillus thuringiensis* (Bt).

- Bt. cotton is the only GM crop approved in 2002 by the Genetic Engineering Appraisal Committee (GEAC) of the Ministry of Environment, Forest and Climate Change for commercial cultivation.

About the Invention

- **Background:** Since the introduction of GM cotton in India, varieties like **Bollgard 1 and Bollgard 2** have controlled certain **bollworm species** (e.g., American bollworm, spotted bollworm).
- **Issue:** However, they have not been effective against PBW as it has developed resistance to the **Cry 1Ac protein**.
- **Solution:** To address this, CSIR-NBRI engineered a **novel insecticidal gene**, demonstrating superior resistance against PBW, compared to **Bollgard 2 cotton**.
 - ⊕ It also **protects** against other pests like the **cotton leafworm and fall armyworm**.

About Pink Bollworm (PBW) and its Detrimental Effects

- **Major Cotton Pest:** PBW (gulabi sundhi) goes through multiple stages—**egg, larva, pupa, and adult**.
 - ⊕ **The larvae** are the **most damaging** stage, feeding on the **cotton bolls**, leading to loss of **seeds and fibers**.
- **Spread and Severity:** States like Gujarat, Madhya Pradesh, Maharashtra, Karnataka, Andhra Pradesh, and Telangana have experienced **yield losses of up to 30%**.

BT COTTON: HOW IT WORKS

Bt cotton is genetically modified to produce a toxin from the bacterium *Bacillus thuringiensis* which is harmful to bollworm pests but not to humans or beneficial insects



1. GENE INSERTION

Scientists insert a gene from *Bacillus thuringiensis* bacterium into cotton plant DNA, enabling it to produce the Cry protein.



2. TOXIN PRODUCTION

When bollworm larvae feed on the cotton plant, they ingest the Cry protein, which becomes toxic in their digestive system, disrupting their gut and ultimately killing them.



3. PEST CONTROL

The Cry protein specifically targets pests like bollworms, which are resistant to many chemical pesticides. This reduces the need for chemical sprays and decreases pesticide use.

Kerala HC Balances Freedom of Expression with Concerns Over Glorification of Violence in Cinema

This observation was made while reviewing petitions in the “**Women in Cinema Collective v State of Kerala & Others**” case about the K. Hema Committee report.

- Formed under retired High Court Justice **K. Hema**, the Committee investigated **sexual harassment and gender inequality** in the **Malayalam film industry**.

The Debate: Regulating Violence in Cinema through Censorship vs. Protecting Freedom of Expression

- **Argument for Regulating Violence in Cinema:**
 - ⊕ **Excessive violence** may influence society by normalizing harmful behaviors.
 - ⊕ **Glorifying violence** in films can have negative psychological effects, especially on impressionable audiences.
- **Argument for Protecting Freedom of Expression:**
 - ⊕ **Cinema reflects** societal realities, including violence, and should not be censored for mirroring them.
 - ⊕ **Freedom of speech** allows filmmakers to express diverse perspectives, even if they include violence.

Important Judgments on Film Censorship and Freedom of Speech:

- **K.A. Abbas v. Union of India:** SC upheld pre-censorship in films as a reasonable restriction for public morality under Article 19(2).
- **S. Rangarajan v. P. Jagjivan Ram:** SC emphasized balancing freedom of expression with public interest, permitting censorship only for valid reasons.
- **Ramesh v. Union of India:** SC protected documentary films from censorship based on public protests or political concerns.
- **F.A. Picture International v. Central Board of Film Certification:** Bombay High Court criticized unnecessary censorship, affirming the filmmaker's constitutional rights.

DETRIMENTS OF MINDLESS VIOLENCE IN MOVIES



Reinforcement of Toxic Masculinity
Kabir Singh and Animal portray dominance and violence as symbols of male strength.



Perpetuation of Gender Stereotypes
Dabangg reduces women to mere love interests, often sidelined in male-driven narratives.



Influence on Vulnerable Minds
Gangs of Wasseypur and Pushpa romanticize violent lifestyles, shaping aggression as power.



Erosion of Social Harmony
KGF glorifies brute force, reinforcing violence as an acceptable means to achieve goals.

NASA's astronauts return to Earth after being stuck in space for 286 days

They had travelled to the **International Space Station (ISS)** on board **Boeing's CST-100 Starliner**.

- ▶ Starliner experienced **helium leaks and a malfunctioning thruster**, which helps steer and control reentry making it unsafe for astronauts.
- ▶ Soviet cosmonaut **Valeri Polyakov holds the record for the longest single stay in space**, spending 438 days aboard the **Mir space station**.

Opportunities from Extended Stay

- ▶ **Medical Research:** Offers a rare chance to study **unplanned long-term space exposure** and its effects on the human body.
- ▶ **Technology Testing:** Helps assess how life-support systems, spacecraft, and onboard equipment perform beyond their intended mission durations.
- ▶ **Deep-Space Mission Preparation:** Provides valuable data for planning **future Mars and lunar missions, where astronauts will spend extended periods in space.**

Health Challenges in Space:

- ▶ **Space Radiation:** Exposure to cosmic rays and solar radiation increases the **risk of cancer and other radiation-induced illnesses.**
- ▶ **Gravity Fields: Microgravity leads to muscle atrophy and bone density loss**, while re-exposure to Earth's gravity can affect balance and coordination.
 - ▶ NASA observes weight-bearing bone loss of **1% to 1.5% per month** in microgravity.
- ▶ **Isolation and Confinement:** The psychological effects of being in confined spaces away from Earth can **impact mental well-being and team dynamics.**

About the International Space Station (ISS)

- ▶ It is a **habitable artificial satellite**, in low Earth orbit (at an altitude of between 370–460 km).
- ▶ **Key partners:** European countries (represented by European Space Agency), United States (National Aeronautics and Space Administration), Japan (Japan Aerospace Exploration Agency), Canada (Canadian Space Agency) and Russia (Roscosmos).
- ▶ **Objectives:** Scientific research, technology testing, deep-space exploration preparation.

India's First PPP Green Waste Processing Plant to launch in Indore

The Public-Private Partnership (PPP) model plant is established under the **Swachh Bharat Mission-Urban**.

- ▶ It aims to revolutionize waste management by converting **green waste into valuable, eco-friendly resources.**

About green waste processing plant in Indore

- ▶ It will process **green waste like wood, branches, leaves, and flowers**, and generate revenue for the Indore Municipal Corporation (IMC).
- ▶ **Under the Swachh Bharat Mission**, the IMC will provide land and will transport green waste to the facility.
 - ⊕ Meanwhile, a private company (Astronomical Industries Private Limited) will take on the responsibility for **installation, operation, and maintenance of the plant.**

Initiatives taken in India to process green waste

- ▶ **Solid Waste Management Rules, 2016:** The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible.
- ▶ **National Bioenergy Energy Programme:** It supports setting up of Bioenergy projects in the country.
- ▶ **Waste to Wealth Mission:** An initiative under the **Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC)**, aims at strengthening the waste management system in India.

About Swachh Bharat Mission (SBM)

▶ Two Components:

- ⊕ **SBM (Gramin)** aimed to ensure cleanliness in rural areas through Solid and Liquid Waste Management activities and make India **Open Defecation Free (ODF)**.
 - ◆ Aim now is to transform all villages from ODF to ODF plus model.
 - ◆ Implemented by the **Ministry of Jal Shakti.**
- ⊕ **SBM (Urban) 2.0** aims to make all cities **garbage free, change public behaviour, ensure grey and black water management.**
 - ◆ Implemented by the **Ministry of Housing and Urban Affairs.**

Also In News



Development vs. Environmental Rights

In the **Auroville Foundation v. Navroz Kersap Mody** case, the Supreme Court emphasized balancing industrial development and environmental protection.

The Debate:

- ▶ **Golden Balance:** Industrial growth should not harm the environment; both goals should be pursued together.
- ▶ **Environmental Rights:** The right to a clean environment is fundamental under Articles 14 and 21.
- ▶ **Right to Development:** Including industrialization, is protected under Articles 14, 19, 21.
- ▶ **Sustainable Growth:** Economic progress must not undermine environmental concerns, advocating for sustainable development.



Internationalisation of Rupee

The RBI and **Bank of Mauritius** signed an **MoU** to promote **local currencies** in **cross-border transactions**, supporting the **internationalization of the Indian Rupee.**

About Internationalisation of Rupee (IoR)

- ▶ **Concept:** It refers to **increasing the global acceptance of the Indian Rupee (INR)** in trade, investment, and forex reserves, reducing dependency on foreign currencies like the US Dollar.
- ▶ **Significance:** It reduces **forex risk, boosts trade, strengthens India's financial influence**, and increases global demand for INR.
- ▶ **Steps Taken to Promote IoR:** Bilateral Currency Swap agreements with countries like Japan, Sri Lanka, Bhutan etc; Issuance of rupee-denominated bonds i.e. Masala bonds.



Future of Free Speech Index 2025

A new global survey by **The Future of Free Speech** ranks **India 24th out of 33 countries** for free speech support.

Other Key-findings

- **Scandinavian countries** (Norway, Denmark, and Sweden) and two democratic backsliders (Hungary and Venezuela) show the **highest levels of support for free speech**.
- **Declining Support in Some Countries:** Countries like Japan, Israel, and the U.S. have experienced significant drops in support for free speech since 2021.
- Traditional media, social media, and AI content generators play pivotal roles in **shaping public discourse and raising concerns about free speech**.



National Innovation Challenge for Drone Application and Research (NIDAR)

The Ministry of Electronics and Information Technology (MeitY), in collaboration with **the Drone Federation India (DFI)**, launched the **NIDAR** under the SwaYaan initiative.

- NIDAR aims to inspire and engage India's student and research communities to **develop collaborative autonomous drones, addressing real-world challenges in the field of Disaster Management and Precision Agriculture**.

About SwaYaan

- Approved by **MeitY in 2022**.
- Focuses on **capacity building for human resource development** in Unmanned Aircraft Systems (UAS), including drones and related technologies.



FireSat

The FireSat project's first satellite successfully placed into Low Earth Orbit (LEO).

About FireSat

- It is being developed by **Google Research, Earth Fire Alliance, the Gordon & Betty Moore Foundation and Muon Space**.
- It will have an **LEO constellation comprising 50 satellites**.
- It will provide **high-resolution imagery** to detect wildfires that are roughly the size of a classroom, and provide **updates every 20 minutes, using AI**, including the fire intensity.



Kamba Ramayana

Ministry of Culture to Revive the 'Kamba Ramayana'

About Kamba Ramayana (The Ramavataram)

- **Composer:** The Kamba Ramayana was composed by the great poet Kamban in Tamil.
- **Time Period:** This version of the Ramayana was written in the 12th-13th century CE.
- **Cultural Significance:** It's a culturally rich adaptation of the Valmiki Ramayana.

About Kamban

- **Birthplace:** Kamban was born in Thanjavur, in the Chola kingdom.
- **Cultural Influence:** He belonged to the third great wave of Tamil literature, following the Sangam period and the Bhakti literature of the Alwars and Nayanmars.



VARUNA 2025

The 23rd edition of the **bilateral naval exercise VARUNA** between **India and France** has started.

- The exercise has been an important part of India-France maritime cooperation since **2001**.



Betwa River

Betwa river is struggling to maintain its natural flow due to human led developments.

About Betwa River

- Also known as **Vetravati in Sanskrit**.
- **Geographical Features**
 - ⊖ **Right bank tributary of the Yamuna.**
 - ⊖ **It originates** at Jhirri Village (District Sehore) near **Bhopal** and **joins Yamuna River** near Hamirpur.
 - ⊖ Passes through **Madhya Pradesh** and **Uttar Pradesh**.
- **Cultural & Historical Significance**
 - ⊖ **The capital of the Chedi Kingdom** (Suktamati) was on its banks.
 - ⊖ Also mentioned in the **epic Mahabharata**.
- **Other information:** **Betwa River Board (BRB)** was constituted under the Betwa River Board Act, 1976; **Ken-Betwa River Link Project** approved in 2021.

Place in News



Peru (Capital: Lima)

Peru has declared a state of emergency and deployed the army in the capital, Lima, following a surge in violence.

Political Features

- Located on the western coast of South America, connecting the Pacific Ocean with the Andes and the Amazon Basin.
- **Land boundaries:** Ecuador and Colombia (north), Brazil (east), Bolivia and Chile (south).

Geographical Features

- **Drainage:** Amazon river, Lake Titicaca (world's highest navigable lake, shared with Bolivia).
- **Forest:** Around 60% of Peru is covered by the Amazon forest.
- **Other Important features:** Atacama Desert (extends into the southern part of Peru from Chile), Nazca Lines (Mysterious geoglyphs in the desert), Humboldt Current (cold ocean current).
- **Natural Resources:** Peru has one of the world's largest silver reserves.



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



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PUNE



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