Current Affairs 25th August 2025 by Right IAS

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Event: DRDO successfully conducted the maiden flight tests of the Integrated Air Defence Weapon System (IADWS) off the Odisha coast. System Features: Multi-layered air defence system. Components: Quick Reaction Surface-to-Air Missiles (QRSAM). Advanced Very Short-Range Air Defence System (VSHORADS) missiles. High-power laser-based Directed Energy Weapon (DEW).

Controlled by Centralised Command and Control Centre (developed by DRDO). Significance: Demonstrates multi-layered air defence capability. Strengthens area defence for critical facilities against aerial threats.

Quick Reaction Surface-to-Air Missile (QRSAM) Overview An indigenously developed missile system by DRDO. Designed to provide short-range air defense against aerial threats. Can be used by the Army and Air Force to protect moving armored columns and vital assets. Key Features Range: 25–30 km. Speed: Supersonic. Targets: Aircraft, helicopters, drones, precision-guided munitions. Radar: Equipped with Active Electronically Scanned Array (AESA) radar for 360° coverage. Mobility: Mounted on 6×6 heavy mobility vehicles, enabling quick deployment. Guidance: Two-way data link + mid-course and terminal guidance with active radar seeker. All-weather capability: Works in varied terrain and climate.

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VSHORADS – Very Short- Range Air Defence System (India) Definition & Purpose A man-portable air defence system (MANPADS) developed indigenously by DRDO's Research Centre Imarat (RCI), Hyderabad, in partnership with other DRDO labs and Indian industry partners Designed to counter low altitude aerial threats, such as drones, helicopters, and aircraft. Range & Portability Effective range: approximately 6 km (some sources cite up to 8 km) Engagement altitude: up to 3.5–4.5 km Highly portable, capable of being shoulder-launched or mounted on a tripod—ideal for deployment in diverse terrain

Design & Technology Powered by a dual-thrust solid rocket motor, enabling strong mid-air manoeuvrability Features advanced technologies: Miniaturized Reaction Control System (RCS) for attitude control using small thrusters Integrated avionics and infrared imaging seekers (dual-waveband IIR) with high target tracking precision

The Hindu

International Big Cat Alliance (IBCA)

Nepal has officially joined the International Big Cat Alliance (IBCA), an India-led global initiative to protect seven species of big cats. The International Big Cat Alliance (IBCA) is a treaty-based intergovernmental international organization launched by India in April 2023, during the 50th anniversary of Project Tiger in Mysuru . The Alliance aims at the conservation of seven big cat species:

Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar, and Puma. Why Was It Created? India proposed this Alliance in 2019 to curb poaching and illegal wildlife trade and later launched the initiative to create a unified global platform for safeguarding big cats and their habitats. The IBCA facilitates: Exchange of best practices and conservation expertise. Capacity building, knowledge sharing, and technical support.

Mobilization of financial resources. Coordination with existing wildlife conservation bodies.

Legal Status & Governance Legal Recognition: The Framework Agreement came into force on January 23, 2025, making IBCA a full-fledged treaty-based entity.

Headquarters Agreement with India signed in May 2025, enforced from June 27, 2025 Funding: India committed a onetime grant of ₹150 crore (2023 24 to 2028–29) for infrastructure, corpus creation, and operational expenses Structure: General Assembly: All member countries. Standing Committee: 7–15 representatives. Secretariat: Based in India, led by a Director General. Appointment of DG: By the General Assembly upon Standing Committee's recommendation

Membership & International Reach Originally conceived as a coalition of 96 big cat range countries, along with interested non-range nations and partners. As of mid-2025: 27 countries including India, Nicaragua, Eswatini, Somalia, Liberia have signed the agreement.

Founding members include: Armenia, Bangladesh, Bhutan, Cambodia, Egypt, Ethiopia, Ecuador, India, Kenya, Malaysia, Mongolia, Nepal, Nigeria, Peru, Suriname, and Uganda Partners: IBCA collaborates with respected bodies like IUCN, WWF, UNDP, International Snow Leopard Trust, Cheetah Conservation Fund, among others.

The Hindu

Economic costs of invasive alien species

Background of the Study Key finding: Costs of biological invasions are severely underestimated, likely 16 times higher than earlier figures.

Global Economic Costs Total estimated global damage: over $2.2 trillion (1960–2022). Regional distribution of costs: Europe: $1.5 trillion (≈71% of global costs). North America: $226 billion. Asia: $182 billion. Africa: $127 billion. Australia & Oceania: $27 billion. Europe's high costs linked to: More valuable infrastructure and agricultural products. Higher management and labour costs.

India-Specific Findings India recorded the largest global discrepancy in reporting management costs: 1.16 billion % gap between actual and reported values.

This suggests: Huge hidden/unrecorded costs. Inadequate documentation and reporting systems. Limited centralised data and poor coordination across agencies. Potential language barriers in the database, underreporting costs in Asia/Africa. Researchers believe much of India's invasive species management remains unrecorded.

Invasive Species and Their Economic Impact Most damaging groups (1960 2022): Plants → $926.38 billion. Arthropods (insects, spiders, etc.) → $830.29 billion. Mammals → $263.35 billion. Costliest plant invaders: Japanese knotweed (Reynoutria japonica). Common lantana (Lantana camara). Spread mechanisms: International trade and travel. Globalisation and bilateral trade agreements.

Policy and Legal Framework Ballast Water Management Convention (International Maritime Organization): Prevents spread of aquatic organisms through ships' ballast water.

Convention on Biological Diversity (CBD): Calls on countries to prevent, control, or eradicate invasive alien species that threaten ecosystems. These policies show global recognition but face implementation challenges. Management and Control Measures Strategies include: Prevention (most effective, least costly). Eradication of small/new populations. Control and suppression where species are widespread. Containment/slowing spread where eradication is

unfeasible. Effective management requires: Improved data collection. Comprehensive cost tracking. Centralised reporting mechanisms.

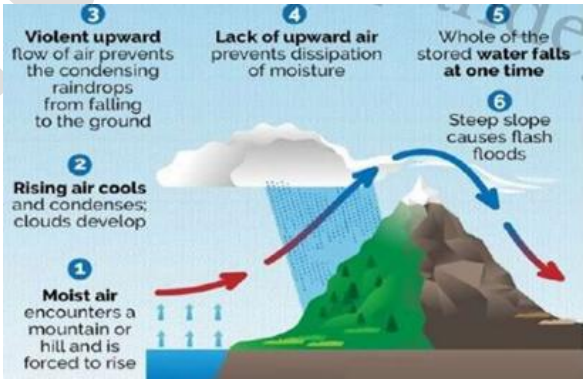
Broader Challenges Conflict between globalisation and conservation: Trade increases invasion risk but is economically important. Climate change adds complexity: Need to expand vegetation for carbon sequestration may aid spread of invasives. Awareness and funding gaps: Developing countries underreport due to limited resources. Researchers highlight that costs are easier to quantify than ecological damage, which may be even greater.

Key Takeaway Invasive alien species have caused trillions in hidden economic costs globally, with India among the most underreported cases. The issue requires global cooperation, stronger data systems, and proactive management policies to prevent further ecological and economic losses.

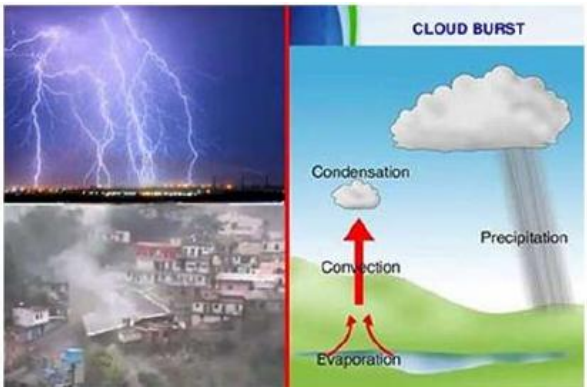
The Hindu

Cloudburst: when the balloon pops

Meaning and Characteristics A cloudburst is a sudden, intense, and highly localised rainfall event that drastically changes weather conditions within minutes. Unlike the steady, widespread monsoon rainfall, cloudbursts impact a small geographical area but with extreme intensity. This can lead to flash floods, landslides, and severe damage, especially in mountainous regions.



Definitions India Meteorological Department (IMD): Rainfall exceeding 100 mm in one hour over an area of 20 30 sq. km is classified as a cloudburst. World Meteorological Organisation (WMO):



Defines cloudbursts as rainfall ≥100 mm per hour. Uses the Swedish term "Skyfall": Short bursts: 1 mm/minute (60 mm/hour). Sustained bursts: 50 mm/hour. Other references: Some scientific literature defines cloudbursts by their physical processes rather than numerical thresholds.

Scientific Explanation of Process Thunderstorm dynamics: Strong updrafts in thunderstorms hold large amounts of moisture aloft. When updrafts collapse → water is suddenly released → intense rainfall. Orographic effect (mountain uplift): Moist air is forced to rise due to mountains. Rapid cooling and condensation occur → heavy rainfall in short duration.

Key Features of Cloudbursts Short-lived (few minutes to an hour). Extremely intense rainfall. Localized → affects a small area, but water runoff may impact a larger downstream region. Causes flash floods, mudslides, and infrastructure damage in vulnerable terrains.

Broader Implications Cloudbursts are increasing in frequency and intensity due to climate change, as warmer air holds more moisture. Particularly dangerous in Himalayan regions (J&K, Himachal Pradesh, Uttarakhand, Northeast India), where steep slopes amplify flood impact. Understanding and forecasting cloudbursts remain a scientific challenge, but crucial for disaster preparedness and risk reduction.

The Hindu

CHAPEA — NASA's Mars Simulation Project

CHAPEA stands for Crew Health and Performance Exploration Analog, a NASA initiative simulating Mars missions here on Earth. What is it? A series of analog missions by NASA where a crew lives in a Mars-like habitat on Earth to study the physical, behavioural, and psychological effects of long-duration isolation Habitat Details (Mars Dune Alpha): Located at NASA's Johnson Space Center in Houston. A 3D-printed structure, ~1,700 sq ft (about 158 sq m), with crew quarters, work areas,

rec rooms, a medical bay, a vertical farm, and simulation of Martian terrain outside

Mission Highlights: Mission 1 began on June 25, 2023 with four crew members Kelly Haston (commander), Ross Brockwell (engineer), Nathan Jones (physician), and Anca Selariu (microbiologist)— and lasted 378 days, ending on July 6, 2024. Crew performed tasks like simulated spacewalks ("Marswalks"), crop growth, habitat maintenance, and coping with delays in communication, resource limitations, and equipment faults.

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Constitution (One Hundred and Thirtieth Amendment) Bill, 2025

Background India struggles with the paradox of demanding moral integrity in politics while tolerating widespread criminalisation of politics. 46% of MPs elected in 2024 declared criminal cases (ADR/NEW data). Bill introduced on 20 August 2025 in Lok Sabha to address this issue.

Main Provisions of the Bill 1. 2. Ministers (including PM/CMs) must resign or face automatic removal if: In custody for 30 consecutive days. For an offence with maximum punishment of 5 years or more. Applies to Union, States, and Delhi (Articles 75, 164, 239AA). Creates a dual removal mechanism: On advice of PM/CM to President/Governor. Automatic removal if advice not given within 30 days.

Judicial Basis S.R. Bommai vs Union of India → stressed constitutional morality & accountability. Manoj Narula vs Union of India → warned against appointing those with serious criminal charges as Ministers. Bill draws legitimacy from these pronouncements.

Positive Aspects Aims to ensure cleaner politics and restore public trust in governance. Prevents leaders in custody from continuing in power. Legislative codification of judicial moral expectations.

Concerns & Challenges

Presumption of Innocence Automatic removal on arrest violates Article 21 (Right to Life & Liberty). Current law (RPA, Sec 8(3)) disqualifies only on conviction, not arrest. In Lily Thomas case, SC upheld disqualification only after conviction. Politicisation of Process PM/CM may shield allies for 30 days. Opponents may exploit automatic removal against rivals.

Inconsistency in Treatment MPs/MLAs → removed only on conviction. Ministers → removed on detention itself. Creates paradox & unfair standards. Governance Instability "Revolving door problem": Ministers resign on detention, then reappointed after release. Leads to frequent political instability. Over-broad Scope Applies to all offences punishable with 5+ years, even minor ones. Risks misuse for political vendetta.

Suggested Reforms / Nuanced Model Link removal to framing of charges by court, not mere arrest. Establish independent review panel/tribunal to avoid executive misuse. Allow suspension from ministerial duties instead of removal till trial outcome. Restrict to offences of corruption & moral turpitude. Harmonise standards between legislators and ministers.

Conclusion Bill reflects strong intent for ethical governance. But risks eroding fairness, due process, and stability if implemented bluntly. Needs careful revision by JPC to balance clean politics with constitutional safeguards. Long-term lesson: Power without integrity corrodes democracy, but integrity without fairness endangers it.

Constitution (130th Amendment) Bill, 2025 Provisions of the Bill Amends Articles 75 and 164 (Union & State Council of Ministers). A Minister arrested & detained for 30 consecutive days for an offence punishable with at least 5 years imprisonment: Must be removed from office on PM/CM's advice. If PM/CM does not act → Minister automatically ceases to hold office on the 31st day. If PM/CM is arrested for 30 consecutive days → must resign on 31st day. Provision for reappointment after release from custody. Extends to Article 239AA (Delhi NCT). Requires two-thirds majority in both Houses of Parliament. Similar amendments proposed for J&K and Puducherry under parliamentary laws. Bill referred to a Joint Parliamentary Committee (JPC). Existing Laws Representation of the People Act, 1951 (RPA): A person convicted and sentenced for ≥2 years is disqualified as MP/MLA. Section 8(4) allowed exemption if an appeal was filed, but struck down in Lily Thomas (2013). Current law disqualifies legislators, not ministers. Election Commission (2016): recommended

barring candidates from contesting if charges framed for offences punishable with ≥5 years.

The Hindu

Use of Decoys in Modern Warfare

What are decoys in warfare? In today's wars, weapons are very accurate and deadly. To survive, armies use decoys things that look like real targets but are fake. Decoys confuse the enemy, waste their weapons, and give real forces time to escape or fight back. Deception has become as important as actual weapons.

India's use of decoys In Operation Sindoor, the Indian Air Force is believed to have used a special decoy system called X-Guard on Rafale fighter jets. X-Guard is made by Israel's company Rafael and works as part of Rafale's electronic warfare (EW) system. The decoy was so effective that Pakistan's fighter jets fired missiles at it, thinking it was a real plane. This saved Indian aircraft and caused confusion about how many planes were actually shot down.

3. How the X-Guard works It is small (30 kg), can be used again, and is pulled behind the aircraft on a fibre-optic cable. It copies the Rafale's signals like radar reflection, speed, and radio waves so enemy radars think it is a real jet. Works together with Rafale's SPECTRA system, which protects the jet from detection and missiles. India is now buying more X Guard units quickly.

Similar systems worldwide BriteCloud (Europe) – used on Typhoon, Gripen, F-16. AN/ALE-50/55 (USA) – used on F/A-18 Super Hornets. Some can even be used on drones like MQ-9 Reapers and Israeli Herons.

Land-based decoys Fake tanks, artillery, and missile launchers are used to mislead enemy drones and satellites. They reflect radar, give off heat, and look real from the air. Examples: Gulf War (1991) – Iraq used fake equipment. Ukraine – uses wooden and 3D-printed decoys to waste Russian missiles. Russia – makes inflatable fake tanks and vehicles. USA – tested fake vehicles to fool Javelin anti-tank missiles. India (2025) – asked companies to make fake T-90 tanks that copy heat and sound to trick enemy drones.

Naval decoys (for warships) Ships use flares, chaff (small metal strips), sound devices, and special decoy boats. Example: Nulka decoy (Australia & USA) – a small flying decoy that looks like a large ship on enemy radar and pulls missiles away from the real ship. Why decoys matter Decoys are cheap but very effective. They help protect expensive planes, tanks, and ships. In modern wars filled with missiles and drones, decoys are becoming essential for survival.

The Hindu

Palmyra – An Ancient City

Location Palmyra is an ancient city in Syria, situated in an oasis in the Syrian desert, northeast of Damascus. It connected the Roman Empire with Persia, India, and China through caravan trade routes. 2. Historical Importance Known as the "Bride of the Desert." It flourished during the 1st–3rd centuries CE as a

wealthy trading hub. Palmyra blended Greco-Roman architecture with Persian and local Semitic styles. Famous monuments: Temple of Bel, Great Colonnade, Roman Theatre, Tower Tombs. It was a UNESCO World Heritage Site (since 1980).

The Hindu

Maritime Reforms in India (2025)

Context India has enacted five major legislations replacing outdated pre-Independence maritime laws. Aim: Modernise maritime sector, align with global best practices, boost investment, and make India a global maritime hub. Legislations cleared during the Monsoon Session of Parliament 2025. Key Legislations 1. Merchant Shipping Act, 2025 Replaces colonial-era laws; aligned with IMO conventions. Goals: Increase Indian-flagged vessels (reduce reliance on foreign ships). Expand ownership categories (allow chartered vessel registration in India). Promote seafarer training & skill development → job creation. Strong marine safety, salvage, and pollution control measures (esp. oil spills). Vision: Supports Maritime Amrit Kaal Vision 2047

Coastal Shipping Act, 2025 Focus: Reduce logistics cost, promote Indian vessels, boost coastal shipping. Provisions: Indian vessels exempted from licensing requirements. Encourages domestic cargo movement on Indian-flagged ships. National Coastal & Inland Shipping Strategic Plan. Public National Database for coastal shipping investments & policy. Target: Coastal cargo movement to rise from 165 MT → 1,300 MT by 2047.

carriage of Goods by Sea Act, 2025 Adopts Hague-Visby Rules (international liability standards). Simplifies archaic carriage laws. Improves transparency and trade efficiency. Facilitates global trade pacts (e.g., CETA with UK). Enhances India's reputation as a reliable maritime trading partner

Bills of Lading Act, 2025 Provides clear legal framework for transfer of rights and liabilities. Simplifies language, reduces litigation. Promotes ease of doing business. Ensures smooth transactions between carriers, shippers, consignees. Expected Benefits Strategic Shift: Moves away from colonial laws → modern global framework. Economic Impact: Lower logistics cost, better trade competitiveness, more investments in ports, shipping, shipbuilding. Employment: Seafarer training, coastal shipping expansion → new job opportunities. Environment: Stronger pollution control & safety standards. Global Integration: Aligns India with international maritime norms.

Maritime India Vision 2047: Supports long-term national strategy for becoming a maritime power.

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