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DAILY NEWS ANALYSIS

6th January

Explained

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EXPLAINED

1. NO BAIL FOR UMAR & SHARJEEL AS : SC MAKES DISTINCTION; FIVE GET RELIEF

1. What is Bail?

Bail is a legal mechanism through which an accused person is **released from custody** while the trial or investigation is ongoing, on the assurance that the person will **appear before the court whenever required**.

Legal Basis

- Governed by the **Code of Criminal Procedure (CrPC), 1973** (Sections **436–450**)
- Rooted in **Article 21 of the Constitution** (Right to Life and Personal Liberty)
- Bail is the **rule**, jail is the **exception** (as held by the Supreme Court)

Objective of Bail

- Prevent unnecessary detention of under-trials
- Balance **individual liberty** with **interests of justice**
- Ensure presence of accused during trial

2. Types of Bail (UPSC Classification)

(A) Regular Bail

- Granted to a person **already arrested and in custody**
- Applied under **Sections 437 and 439 CrPC**
- Granted by **Magistrate or Sessions/High Court**

(B) Anticipatory Bail

- Granted **before arrest**
- Applied under **Section 438 CrPC**
- Protects a person who apprehends arrest for a non-bailable offence
- Becomes effective **at the time of arrest**

Example: Protection against false or motivated arrest

(C) Interim Bail

- **Temporary bail** granted for a short period
- Operates till final decision on regular or anticipatory bail

(D) Default (Statutory) Bail

- Granted when the **investigating agency fails to complete investigation** within prescribed time
- Under **Section 167(2) CrPC**
- Time limits:
  - 60 days (ordinary offences)
  - 90 days (serious offences)

Considered a **fundamental right under Article 21**

3. Conditions Under Which Bail Is Granted

Courts generally grant bail when:

1. Offence is **bailable**
2. Accused is **not likely to abscond**
3. Accused is **not a habitual offender**
4. No possibility of **tampering with evidence or witnesses**
5. Accused cooperates with investigation
6. Offence does not involve **grave threat to society or national security**
7. Prolonged detention violates **right to speedy trial**

4. Conditions Under Which Bail Is Not Granted

Bail is generally **denied** when:

1. Offence is **serious or heinous** (murder, rape, terrorism)
2. Accused may **flee from justice**
3. Possibility of **tampering with evidence**
4. Threat to **witnesses or victim**
5. Accused is a **repeat offender**
6. Crime affects **national security or public order**
7. Strong prima facie evidence exists

5. Difference Between Bail, Parole, and Furlough

Aspect	Bail	Parole	Furlough
Stage	Before conviction	After conviction	After conviction
Purpose	Ensure appearance during trial	Temporary release for emergency	Periodic break for reform
Nature	Legal right/ discretion	Concession	Right (subject to rules)
Duration	Till trial ends	Short-term	Longer, fixed period
Reason	Judicial process	Emergency (death, illness)	Reform and social bonding
Authority	Court	Prison authority	Prison authority
Counts as Sentence	No	Yes	Yes

6. Key Supreme Court Principles

- **"Bail is the rule, jail is the exception"** – *State of Rajasthan v. Balchand*
- Under-trial detention should not become punitive
- Delay in trial strengthens the case for bail

2. NEW ERA OF FISCAL PRUDENCE. DELHI GETS ITS PUBLIC ACCOUNT

Types of Accounts of a State Government

Under India's public finance system, **State Governments maintain three main types of accounts**, as mandated by the Constitution and financial rules.

(A) Consolidated Fund of the State (Article 266)

- It is the **most important account** of a State Government.
- All **revenues received** by the state (tax and non-tax) and **loans raised** by it are credited here.
- All **government expenditure** is made from this fund.
- **No money can be withdrawn without legislative approval** of the State Legislature.

(B) Contingency Fund of the State (Article 267)

- Used to meet **unforeseen or emergency expenditure**.
- Operated by the **Governor** of the State.
- Money withdrawn must be **subsequently approved by the Legislature** and recouped.

(C) Public Account of the State (Article 266)

- This account holds money that **does not belong to the government**, but for which the government acts as a **custodian or trustee**.
- **Legislative approval is NOT required** for withdrawals, as the money is not government revenue.

The **National Small Savings Fund (NSSF)** is a **Public Account fund of the Union Government**, created to pool collections from **small savings schemes**.

Sources of NSSF

- Post Office Savings Accounts
- Public Provident Fund (PPF)
- National Savings Certificates (NSC)
- Kisan Vikas Patra
- Sukanya Samriddhi Yojana

How NSSF Works

- Small savings collected across states are **credited to the NSSF**.
- States can **borrow from the NSSF** to meet their financing needs.
- These borrowings are treated as **liabilities of the state government**.

Reasons Delhi Did Not Have a Public Account Earlier

1. **Special Constitutional Status**
   - Delhi is a **Union Territory with a legislature**, not a full-fledged state.
   - Historically, its finances were largely managed through **Central Government arrangements**, reducing the need for a separate Public Account.
2. **Dependence on NSSF Borrowings**
   - Delhi relied heavily on **NSSF loans**, which are routed through the **Centre's Public Account**.
   - Hence, Delhi did not maintain an **independent Public Account structure** like full states.
   - Delhi did not operate large-scale small savings or trust funds independently.
   - Delhi largely avoided **market-based borrowing**, depending instead on:
     - NSSF
     - Central assistance
3. **Why Opening a Public Account Now Matters**
   - Delhi plans to **shift from NSSF borrowing to market loans**.
   - Market borrowings are:
     - **Cheaper**
     - More flexible
     - Better aligned with fiscal discipline norms
   - Establishing a **Public Account** allows:
     - Better **cash management**
     - Reduced dependence on high-interest NSSF loans
     - Improved **transparency in fiscal operations**
     - It signals **maturity in fiscal governance**, similar to full-fledged states.

3. WHAT DOES THE SHANTI BILL CHANGE?

Parliament has passed the **Sustainable Harnessing and Advancement of Nuclear Energy in India (SHANTI) Bill**. The move aligns with India's goal

of **energy security and clean energy transition**, supported by a **₹20,000 crore Nuclear Energy Mission** focused on **Small Modular Reactors (SMRs)** and **advanced pressurised water reactors**.

Since **1956**, India's nuclear sector has remained **State-controlled**, with private and foreign participation restricted under:

- Atomic Energy Act, 1962
- Civil Liability for Nuclear Damage Act, 2010

What is the SHANTI Bill?

- An **overarching legislation** opening India's nuclear power sector to **private and foreign participation**.
- Ends the exclusive State monopoly and allows **private Indian companies** to:
  - Own
  - Build
  - Operate nuclear power plants
- Allows **foreign supplier participation** (but not explicit FDI).
- Caps private participation at **49%**, while the government retains **51% control** over:
  - Nuclear fuel production
  - Heavy water manufacturing
  - Radioactive waste management
  - Safety mechanisms
  - Licensing and strategic oversight
- Ends **NPCIL's monopoly** over plant operations.
- Enables **public-private partnerships** involving:
  - Fuel fabrication
  - Equipment manufacturing
  - Plant operations
  - Research and development
- Facilitates deployment of **SMRs** and **indigenous reactor designs**, supporting clean energy and long-term energy security.

Role of the Atomic Energy Regulatory Board (AERB)

- Established in **1983** under the Atomic Energy Act.
- Granted **statutory status** under the Bill and made **answerable to Parliament**.
- Responsible for:
  - Nuclear safety
  - Radiation protection
  - Emergency preparedness
  - Quality assurance
- Issues licences, safety standards, and inspections.
- Administers industrial safety under the **Factories Act, 1948** (Section 23 of the Atomic Energy Act).
- Plays a crucial role due to increased private participation.
- Criticism: **concentration of regulatory power** in a single institution.

Safeguards Under the Bill

- No explicit permission for **foreign direct investment**.
- Mandatory **AERB authorisation** for:
  - Production, possession, disposal of radioactive materials
  - Radiation-generating equipment
  - Establishing, operating, or decommissioning nuclear facilities
- Government retains control over:
  - Reprocessing and management of spent fuel
  - High-level radioactive waste
  - Heavy water production
  - Enrichment and isotopic separation
- Establishes a **nuclear liability fund** to meet compensation needs in case of accidents.

Changes in Nuclear Liability Regime

- Introduces **clear and predictable liability caps**:
  - ₹3,000 crore – large plants (3,600 MW)
  - ₹1,500 crore – medium plants (1,500–3,600 MW)
  - ₹100 crore – SMRs (150 MW)
- Penalties for severe legal violations capped at **₹1 crore**.
- The Union government bears liability **beyond operator caps**, supported by the liability fund.
- **Supplier liability completely removed**, unlike the earlier regime where suppliers could be held responsible for:
  - Defective parts
  - Faulty equipment
  - Design inefficiencies
  - Deliberate acts causing damage

Government's Rationale

- Strengthen **energy security** by diversifying the energy mix.
- Reduce dependence on:
  - Fossil fuels
  - Fuel imports

- Ensure **24×7 baseload power**, unlike solar and wind.
- Reduce reliance on coal.
- Support **economic growth and technological advancement**.
- Promote **clean energy** with very low carbon emissions.
- Aid India's **net-zero by 2070** target.
- Revive stalled nuclear deals with:
  - U.S.
  - France
  - Japan
- Reduce overdependence on Russia.
- Enhance India's image as a **responsible global nuclear power**.

Why India Needs Nuclear Energy

- Limitations of renewables due to:
  - Geography
  - Climate variability
  - High storage and grid integration costs
- Continued dependence on coal.
- Nuclear energy provides:
  - Affordable
  - Reliable
  - Large-scale baseload power

Opposition's Criticism

- Bill dilutes accountability by:
  - Allowing profit-driven private firms
  - Shifting liability to the State and society
- Removal of supplier liability violates the **polluter pays principle**.
- Liability caps and penalties considered **grossly inadequate**.
- Comparison with disasters:
  - Fukushima damages were **700 times higher** than proposed caps.
- Operator liability not indexed to inflation or long-term health and environmental costs.
- **Section 39** overrides the **RTI Act, 2005**, restricting access to:
  - Plant details
  - Operations
  - Regulatory data
  - Nuclear material information
- **Section 42** exempts nuclear facilities from general labour safety laws.
- No provisions for:
  - Mandatory public hearings
  - Environmental impact disclosures
  - Community consent
  - Regular public safety reporting
  - Parliamentary scrutiny
- Cites **France**, where nuclear power remains fully State-controlled.

4. RED FLAGS OVER GREENLAND: WHY US WANTS TO ANNEX THE TERRITORY

WHAT'S IN NEWS?

Post the capture of Venezuelan President Nicolas Maduro, US President Donald Trump repeated his threat to annex the autonomous Danish province of Greenland. He said the US "absolutely needs" it "for defence", while his aides posted provocative "SOON" maps of the island draped in the American flag.

Greenland

- It is the world's largest (non-continent) island located between the continents of North America and Europe in the North Atlantic Ocean.
- It is geographically considered a part of the North American continent.
- It was once a Danish colony and is now an autonomous province of Denmark.
- **Borders of Greenland:** It is surrounded by the Arctic Ocean to the north; by the Greenland Sea to the east; by the North Atlantic Ocean to the southeast; Davis Strait to the southwest and Baffin Bay to the west.
- The Davis Strait is a wide, cold waterway in the North Atlantic, connecting Baffin Bay (north) to the Labrador Sea (south), separating Greenland from Canada's Baffin Island,
- **Capital:** Nuuk

Why does the US want Greenland?

1. **Strategic interests:** American interest in Greenland, the world's largest island, is rooted in geostrategy.
   (a) It is located near the emerging shipping lanes around the Arctic.
   (b) It served as a vital base of operations during the Cold War (1945-91). The US operates the sprawling Pi-tuffik Space Base (formerly the Thule Air Base) in the province.
   (c) From Greenland, the US can monitor and stop any missile coming towards it from Russia, China or even North Korea. Similarly, it can launch missiles and ships towards Asia or Europe easily from Greenland.
   (d) In recent years, China and Russia have reportedly scaled up their military capabilities in the Arctic
2. **Mineral Resources:** Greenland has large reserves of not just traditional resources-gold, nickel and cobalt-but also some of the biggest reserves of Rare Earth minerals.
   - Rare Earths are used extensively in critical consumer techno-logies such as phones and electric vehicles as well as in new military applications.
   - China is currently the leading supplier of Rare Earths.
   - Crucially, China too has entered Greenland in a big way. Chinese companies are actively involved in prospecting, mining and processing these mineral resources. They account for 11% per cent of the investments in the mineral sector in Greenland, just behind Australia and the US
3. Polar Silk Road: China has also been involved in creation of new infrastructure, aimed at facilitating greater usage of Arctic sea routes.
   - In 2018, it released a white paper on its Arctic policy, in which it unveiled plans of creating a 'Polar Silk Road'.
   - The US, with its defence assets in Green-land, is unnerved by these developments, and has even tried to dissuade Denmark from allowing too many Chinese companies in the island.

5. WHAT REMOTE-SENSING REVEALS ABOUT PLANTS, FORESTS, AND MINERALS FROM SPACE

- Remote sensing is what engineers and scientists use to map the earth's resources without ever touching the ground. From tracking the health of a forest to finding water deep underground, their satellites and drones are changing the way humans understand our planet.
- Our eyes only see visible light, e.g., the colours of the rainbow. But the sun emits many other types of electromagnetic energy that we can't see, like infrared and ultraviolet light.
- Everything on the earth, including the rocks, the water, the trees, etc., reflects these energies differently. The reflections are called spectral signatures; they are sort of like the fingerprint of the materials these objects are made of.
- By studying this light, a sensor installed onboard a satellite can look at a patch of ground and say, "This reflects a lot of near-infrared light but absorbs red light. Therefore, it must be a healthy plant." This is the basic idea of remote sensing.

VEGETATION

- Farmers and forest rangers use satellites to check the health of plants. Healthy leaves are full of chlorophyll, which absorbs red light for photosynthesis and reflects near-infrared light to avoid overheating.
- Scientists use a formula called the normalised difference vegetation index to determine if a plant is healthy based on its spectral signatures. If a satellite observes high near-infrared reflection, the crops are healthy. If the reflection of that part of the spectrum drops, the plants might be thirsty or sick.
- According to a review published in the Journal of Plant Ecology in 2008, by analysing the spectral signatures, researchers can distinguish between different plant communities and tree species across entire forests.
- Such mapping is the first critical step in calculating the biomass of a forest, which is essentially weighing the trees from space, to understand how much carbon they are storing to help fight climate change.

WATER MAPPING

- To map water bodies from space, scientists mainly use two complementary techniques: optical indexing, using reflected sunlight, and synthetic aperture radar, using active radio waves.
- The optical indexing technique makes use of the fact that water reflects visible green light, which is why deep water often looks blue-green, but strongly absorbs near-infrared and shortwave

infrared light. These readings are combined in the normalised difference water index (NDWI).

- This way, in remote-sensing data, the index has a high positive value over water bodies and a negative value over land. A newer version called modified NDWI (MNDWI) uses only shortwave infrared light. This is often preferred in cities because it's better at distinguishing between water and the shadows cast by tall buildings.
- Of course, optical cameras have a weakness: they can't see through clouds or at night. To map water in these conditions, including floods during a storm, scientists use synthetic aperture radar (SAR).
- In SAR's gaze, surfaces like soil, grass, and buildings — which scatter radio waves in all directions — look bright. Calm water, however, is very smooth, almost like a mirror, and looks pitch black. So by looking for these black patches in a radar image, scientists can map floodwaters even through a cyclone.
- Satellites can also estimate water quality. Muddy water reflects light differently than clear water, and water full of algae has a specific spectral signature. This helps environmentalists track pollution or harmful algal blooms.

UNDERGROUND MAPPING

- Valuable minerals like copper, gold, and lithium often form deep underground, but geological forces push some of them to the surface over millions of years. Even if they're just traces in the soil, hyperspectral sensors can find them.
- When sunlight strikes an object, it's reflected. A normal camera may group that reflection into a combination of three main colours: red, green, and blue. A hyperspectral sensor uses a prism or grating to split that light into hundreds of very narrow, continuous colours and measures the intensity of light at every single frequency across the spectrum. As a result, these sensors can create a spectral signature for every pixel in the image.
- So while a 'normal' satellite might look at a forest and say, "This is green. It's a tree", a hyperspectral sensor could look at the same forest and say, "This is a banyan tree. It has a nitrogen deficiency. And the rock next to it is limestone, not granite."
- According to a 2023 study in Ore Geology Reviews, geologists also use these sensors to map alteration zones, areas where heat and fluids from deep underground have changed the chemistry of surface rocks.
- Oil and gas are trapped deep in the earth but small amounts often leak upwards through very small cracks, a process called micro-seepage. When this gas reaches the surface, it changes the soil chemistry and can even turn the leaves of plants slightly yellow, by stressing them out.
- Satellites can detect these subtle changes in vegetation health and soil colour, giving exploration companies a sense of where to drill.
- If there's no seepage, there's no way satellites' sensors can 'see' the oil or gas directly. However, satellites are still crucial in these situations because, instead of looking for the oil, geologists use satellites to look for the container holding the oil.
- Oil and gas don't just lie in big underground lakes; they're also trapped in the pores of rocks and are usually naturally squeezed into specific shapes called traps. The most common trap is an anticline, where rock layers curve upwards like a dome or an arch.
- NASA's Landsat satellites or Japan's Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) sensor onboard NASA's Terra satellite take pictures of exposed rock layers on the earth's surface. And if geologists see layers on the surface that are folded into the shape of a dome, there's a good chance they're folded the same way deeper underground.
- Another technique makes use of the fact that oil forms when organic materials are buried deep and 'cooked' by the earth's heat for millions of years. This happens in deep depressions called sedimentary basins.
- Over the oceans, satellites measure the height of the sea surface with incredible precision. Large underwater geological structures, which might contain oil traps, have a gravitational pull that actually piles water up above them. By mapping these bumps in the ocean, scientists can map the rock structures below the seafloor.
- Oil is found in sedimentary rock like sandstone or limestone, which is generally not magnetic. However, the basement rock deep below it, such as granite or volcanic rock, is magnetic. So satellites measure the earth's magnetic field to find where the magnetic basement is very deep.
- And where the basement is deep, it means there could be a thick layer of sedimentary rock on top, with the prospect of oil.
- In effect, when there's no micro-seepage, satellites can't say "there's oil here" but rather

that "there's a geological structure here capable of holding oil".

GROUNDWATER

- Since water is heavy, a large underground aquifer actually has a stronger gravitational pull than dry rock.
- From 2002 to 2017, NASA operated its Gravity Recovery and Climate Experiment (GRACE) mission with two satellites that chased each other around the earth.
- When the lead satellite flew over a heavy underground aquifer, gravity would pull it slightly faster, changing the distance between the two satellites. By measuring this change in distance, scientists could weigh the water underground.
- One famous 2009 study published in Nature used GRACE data to show that groundwater levels in North India were dropping at alarming rates because they were being extracted to irrigate crops.

Remote sensing makes resource exploration faster, cheaper, and more environmentally friendly. Instead of drilling thousands of holes to find oil or water, we can target specific areas. It also helps us protect resources: by monitoring forests and aquifers from space, we can ensure we aren't using them up faster than nature can replenish them.

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