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Daily News Analysis

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1. Jal Jeevan Mission

- **Prelims** - Jal Jeevan Mission
- **Mains** - GS 2 - Governance

Why in the news?

- The Union government plans to map all drinking water assets including pipelines created under its Jal Jeevan Mission (JJM) on PM Gati Shakti, a Geographic Information System (GIS)-based platform.

Jal Jeevan Mission

- **Launched:** 15 August 2019
- **Nodal Ministry:** Ministry of Jal Shakti
- **Aim:** To provide Functional Household Tap Connection (FHTC) to every rural household by 2024, ensuring access to safe and adequate drinking water.
- **Tagline:** “Har Ghar Nal Se Jal”
- **Funding:** Centrally Sponsored Scheme
- **Objectives:**
 - To ensure 55 litres per capita per day (LPCD) of potable water to every rural household.
 - To improve water quality, especially in fluoride, arsenic, iron, nitrate, and salinity-affected areas.
 - To promote source sustainability through recharge, reuse, greywater management, and water conservation.
 - To build village-level institutions for operation, maintenance, and ownership of water supply systems.
- **Implementation:**
 - Decentralized approach – led by States/UTs and Panchayati Raj Institutions.
 - Convergence with MGNREGS, Swachh Bharat Mission (Gramin), Atal Bhujal Yojana.
- **Progress:**
 - 14 crore+ rural households with tap water connections.
 - 100% coverage: Goa, Telangana, Haryana, Punjab, Gujarat, Puducherry.
 - 4 lakh+ villages certified as Har Ghar Jal.



- **Challenges:**

- Groundwater depletion and seasonal variability.
- Fluoride, arsenic, and nitrate contamination.
- Operation & maintenance at village level.
- Behavioral change and community participation.

- **Significance:**

- Improves public health and reduces water-borne diseases.
- Promotes gender equity (reduces women's drudgery).
- Strengthens local governance and community ownership.
- Contributes to SDG-6: Clean Water and Sanitation.

PM Gati Shakti Portal

- **What is it?:** The Gati Shakti Portal is a government digital platform designed to facilitate integrated, synchronized, and comprehensive planning for infrastructure development, primarily focused on multi-modal connectivity to drive economic growth.
- **Aim:** It aims to bring together 16 different ministries and state governments to coordinate the planning and implementation of projects across roads, railways, airports, ports, mass transport, waterways, and logistics infrastructure, with a focus on improving last-mile connectivity and reducing logistics costs.



2. Blizzard

- Prelims - Blizzard
- Mains - GS 3 - Disaster Management

Why in the news?

- A severe blizzard struck the eastern face of Mount Everest in Tibet, trapping nearly 1,000 trekkers in the remote Karma valley.

Blizzard

- **What is it?:** A blizzard is a severe snowstorm characterized by strong sustained winds (≥ 56 km/h or 35 mph) and low visibility (less than 400 metres) lasting at least 3 hours.
- **Areas Affecting:**
 - **Global:** Polar and temperate regions.
 - **India:** Himalayan regions (Ladakh, Himachal Pradesh, Uttarakhand, Arunachal Pradesh)
- **Causes:**
 - Cold polar air masses meeting warm, moist air from lower latitudes.
 - Formation along low-pressure systems where frontal lifting causes heavy snowfall.
 - Strong pressure gradients create high wind speeds, blowing loose snow and reducing visibility.
- **Types:**
 - Ground Blizzard: Snow already on the ground is blown by wind; no fresh snowfall.
 - Lake-Effect Blizzard: Moisture from a lake evaporates into cold air, forming intense localized snowfalls (e.g. Great Lakes region, USA).
 - Nor'easter (in North America): Powerful winter storm moving up the eastern coast, bringing blizzard-like conditions.
- **Effects:**
 - Transport disruption: road, rail, air closures.
 - Power outages due to ice accumulation on lines.
 - Livestock and crop losses in rural areas.



- Frostbite and hypothermia risks for humans.
- Economic losses from halted activity and emergency response.
- **Preparedness & Mitigation:**
 - Early warning systems by meteorological agencies.
 - Shelters and heating infrastructure in snow-prone areas.
 - Snow fencing and tree belts to reduce drifting.
 - Emergency kits and public awareness campaigns.



3. Quantum Tunnelling

- Prelims - Quantum Tunnelling
- Mains - GS 3 - Science and Technology

Why in the news?

- The Nobel Prize for Physics this year will be awarded to three scientists — John Clarke, Michel Devoret and John Martinis, the Royal Swedish Academy of Sciences for developing a device showing ‘quantum tunnelling’.

Quantum Tunnelling

- What is it?:
 - Quantum tunnelling is a quantum mechanical phenomenon where a particle passes through an energy barrier that it classically should not be able to cross.
 - It occurs due to the wave–particle duality of matter — particles behave like waves and have a finite probability of being found beyond the barrier.
- How does it work?:
 - In classical physics, a particle cannot cross a barrier if its energy is less than the barrier’s potential energy.
 - In quantum mechanics, the wave function describing the particle extends beyond the barrier.
 - Thus, there is a non-zero probability that the particle “tunnels” through it — appearing on the other side without having enough energy to climb over it.
- Significance:
 - Challenges classical determinism, proving that subatomic particles can behave probabilistically.
 - Foundation of many modern technologies and quantum theory applications.



4. Peripheral Immune Tolerance

- **Prelims** - Peripheral immune tolerance
- **Mains** - GS 3 - Science and Technology

Why in the news?

- Mary E. Brunkow, Fred Ramsdell and Shimon Sakaguchi have won the Nobel Prize in medicine for their discoveries concerning peripheral immune tolerance.

Peripheral Immune Tolerance

- **What is it?:** Peripheral immune tolerance refers to the mechanisms that prevent immune cells (especially T and B lymphocytes) from attacking the body's own tissues after they have matured and left the thymus or bone marrow.
- **Where does it occur:** Occurs in peripheral lymphoid organs such as lymph nodes, spleen, mucosal tissues, and throughout the bloodstream.
- **Mechanism:**
 - **Anergy (Functional Inactivation):** Self-reactive lymphocytes become inactive when they recognize self-antigens without co-stimulatory signals (e.g., absence of CD28-B7 interaction).
 - **Suppression by Regulatory T Cells (Tregs):** CD4⁺CD25⁺FOXP3⁺ Tregs secrete IL-10 and TGF- β , suppressing self-reactive immune responses.
 - **Deletion (Apoptosis):** Self-reactive T or B cells undergo programmed cell death when repeatedly stimulated by self-antigens.
 - **Immune Privilege:** Certain sites (e.g., eye, brain, testis, placenta) are naturally shielded from immune attack — antigens here induce tolerance rather than response.
- **Importance:**
 - Prevents autoimmune diseases such as Type-1 Diabetes, Rheumatoid Arthritis, and Multiple Sclerosis.
 - Maintains immune homeostasis and self-tissue protection.



→ Ensures tolerance to commensal microbes and dietary antigens in mucosal surfaces.

- **Failure Leads to:**

→ Leads to autoimmune disorders, chronic inflammation, and transplant rejection.

→ Can be caused by genetic mutations



5. Self-Regulatory Organisations (SROs) and NBFCs

- **Prelims** - Self-Regulatory Organisations (SROs) and NBFCs
- **Mains** - GS 3 - Economy

Why in the news?

- The Finance Industry Development Council was granted Self-Regulatory Organisation status by the RBI to help ensure regulatory compliance in the Non-banking lending sector.

Self-Regulatory Organisations (SROs)

- **What is it?:** A Self-Regulatory Organisation (SRO) is a non-governmental, industry-created body that sets and enforces rules and ethical standards for its members to ensure fair conduct, protect stakeholders, and promote professionalism.
- **Key Features:**
 - **Industry-Driven Regulation:** Created by members of a particular sector to manage internal discipline and compliance.
 - **Rule-Making Power:** Formulates codes of conduct, operational norms, and grievance mechanisms for members.
 - **Collaborative Governance:** Works in consultation with the government, consumers, and other stakeholders.
 - **Enforcement Mechanism:** Operates through impartial processes- members accept disciplinary or penal actions for violations.
 - **Public-Interest Focus:** Goes beyond industry self-interest to safeguard workers, customers, and the ecosystem.
 - **Government Oversight:** Though private, SROs function under a degree of statutory regulation; some regulatory powers are delegated to them.
 - **Watchdog Role:** Acts as a deterrent to fraud, malpractice, or unethical practices in the sector.
 - **Source of Authority:** Their authority usually stems from industry consensus or contractual agreements rather than a direct statutory grant.
- **Examples in India:**
 - **Association of Mutual Funds in India (AMFI)** – for mutual funds.



- **National Stock Exchange & BSE** – act as SROs in the securities market under SEBI.
- **Institute of Chartered Accountants of India (ICAI)** – regulates the accounting profession.
- **Advertising Standards Council of India (ASCI)** – regulates advertising ethics.
- **Significance:**
 - Promotes industry integrity and market efficiency.
 - Enhances regulatory flexibility and speed of decision-making.
 - Encourages responsible self-discipline and ethical awareness.
- **Challenges:**
 - Risk of regulatory capture (favoring members' interests).
 - Limited enforcement power without statutory backing.
 - Overlap or conflict with government regulators.
 - Transparency concerns if internal governance is weak.

Non-Banking Financial Companies(NBFC)

- **What is it?:** A Non-Banking Financial Company (NBFC) is a company registered under the Companies Act, 1956 / 2013 engaged in the business of:
 - Loans and advances
 - Acquisition of shares, stocks, bonds, debentures, or government securities
 - Leasing, hire-purchase, insurance, or chit fund business
- **Functions**
 - Provide credit to individuals, MSMEs, infrastructure, housing, and rural sectors.
 - Offer financial services such as leasing, hire purchase, investment, and microfinance.
 - Facilitate financial inclusion and complement the formal banking system.
 - Provide advisory services and wealth management (in select categories).
- **Major Restrictions**
 - Cannot accept deposits for <12 months or >60 months.
 - Cannot issue cheques on themselves (not part of payment system).
 - No Deposit Insurance under DICGC (unlike banks).



- Not subject to CRR/SLR requirements.
- Operate under lighter regulatory norms compared to banks.
- **Regulations**
 - **Reserve Bank of India (RBI)**: Issues licenses, regulates operations, supervises prudential norms.
 - **Ministry of Corporate Affairs (MCA)**: Governs incorporation and company law matters.



6. Mig La Pass

- Prelims - Mig La Pass
- Mains - GS 1 - Geography

Why in the news?

- The Border Road Organization is building the **highest motorable road** at Mig La Pass under Project Himank.

Mig La Pass

- **Location:** Mig La Pass is located on the Changthang Plateau in Ladakh.
- **Connecting:** Eastern Ladakh, connecting Hanle region to Fukche village near the Line of Actual Control (LAC).
- **Altitude:** 19,400 feet (5,913 metres)- surpassing Umling La Pass (19,024 ft).
- **Executed by:** Border Roads Organisation (BRO) under Project Himank, led by Brigadier Vishal Srivastava.
- **Agency:** Ministry of Defence.
- **Significance:**
 - **Strategic Importance:** Strengthens India's defence logistics and mobility along a sensitive LAC sector.
 - **Connectivity Boost:** Provides year-round road access for remote border villages such as **Hanle** and **Fukche**, ensuring smoother supply of essentials.
 - **Symbol of Self-Reliance:** Demonstrates India's capability in executing **extreme-altitude infrastructure** through indigenous engineering and innovation.
 - **Tourism Potential:** Opens avenues for **eco-tourism and astro-tourism** in Hanle (home to India's high-altitude observatory).

- **Project Himank (1985-present):** A specialised BRO initiative for Ladakh's **high-altitude road network**- includes Khardung La, Umling La, and now Mig La.
- **Border Road Organisation:** Enhances border connectivity and **civil-military synergy**, symbolising national resilience in extreme terrain.