



# Daily Current Affairs



## To The Point by Dhananjay Gautam

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## 1 Himachal Pradesh's Pilot Project for Controlled Cannabis Cultivation

**Context:** The Himachal Pradesh government has approved a **pilot project** for the **regulated cultivation of cannabis**, aiming to unlock its **medicinal and industrial** potential. This initiative positions Himachal Pradesh as the **fourth Indian state** to permit cannabis cultivation, following **Uttarakhand, Madhya Pradesh, and Jammu & Kashmir**.



### Why This Initiative?

#### Background & Legal Framework:

- Cannabis grows **naturally** across Himachal Pradesh, yet its cultivation was banned under the **Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985**.
- Recent **amendments** to the NDPS Act now allow states to regulate cannabis cultivation for **medicinal and industrial** applications under strict **licensing and regulatory conditions**.
- The project aims to **identify suitable cannabis strains** with a focus on **non-narcotic uses** like **textiles, paper, food, cosmetics, and biofuel**.

### Global Cannabis Market & Himachal Pradesh's Potential

#### Cannabis: A Trillion-Dollar Industry

- Countries such as **Canada, the USA, France, Italy, China, Australia, and Denmark** lead in **hemp cultivation** and the manufacture of cannabis-based products.
- Cannabis has been dubbed a "**Trillion-Dollar Crop**" due to its **wide-ranging applications** across multiple industries.
- With over **25,000 known industrial applications**, Himachal Pradesh aims to **tap into this lucrative market** while ensuring **strict regulatory compliance**.

### Industrial & Medicinal Potential of Cannabis:

#### Understanding Cannabis Sativa L. (Industrial Hemp):

- Cannabis contains over **100 cannabinoids**, of which **Tetrahydrocannabinol (THC)** and **Cannabidiol (CBD)** are the most significant.
- THC** is **psychoactive**, while **CBD** is **non-psychoactive** and offers multiple **therapeutic benefits**.

#### Applications Based on THC Content:

- Industrial Use (THC < 0.3%):**
  - Used in **textiles, paper, biofuel, cosmetics, food supplements, and animal feed**.
- Medicinal Use (THC > 0.3%):**
  - THC** is used for treating **chronic diseases** such as **Multiple Sclerosis, Crohn's disease, Alzheimer's, cancer, and chronic pain**.
  - CBD** has shown **potential therapeutic effects** in treating **psychosis, epilepsy, inflammation, and neurodegenerative diseases**.

### Legality of Cannabis in India:

#### Key Legal Provisions:

- International Conventions:**

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- India follows the **Single Convention on Narcotic Drugs (1961)**, which classifies cannabis alongside **hard drugs** like heroin.

## 2. Indian Constitutional & Legal Framework:

- Article 47** (Directive Principles of State Policy) advises against **harmful drugs and intoxicants**.
- NDPS Act, 1985** prohibits cannabis cultivation and use.
- Section 14 of the NDPS Act** allows the **government** to permit **cannabis cultivation** for **horticultural and industrial purposes**.
- Bhang**, made from cannabis leaves, is **not prohibited** under the NDPS Act and falls under **state jurisdiction**.

## Controlled Cultivation & Economic Benefits:

### Ensuring Responsible Cultivation:

- Only **low-THC hemp varieties** (<0.3% THC) will be cultivated to prevent **misuse**.
- The **focus** will be on **industrial** and **medicinal** applications rather than recreational use.
- Hemp's **stalks, leaves, and seeds** will be processed into **textiles, food, cosmetics, paper, and biofuel**.

### Economic & Revenue Impact:

- The project is expected to **generate an annual income of ₹500 crore** for Himachal Pradesh.
- Aligns with global trends, where **countries like the US, Canada, and Germany** have successfully leveraged **regulated cannabis cultivation** for **economic growth**.

## Challenges & Roadblocks:

### Regulatory & Implementation Concerns:

- Ensuring Compliance:**
  - Strict **quality control measures** must be implemented to **prevent illegal diversion**.
- Market & Infrastructure Development:**
  - Need for **strong supply chains** to support cannabis-based industries.
- Public Perception & Awareness:**
  - Overcoming **societal stigma** and raising **awareness about the non-narcotic uses** of cannabis.

## Conclusion: A Step Toward Innovation & Economic Growth

Himachal Pradesh's **controlled cannabis cultivation initiative** marks a **progressive shift** toward **harnessing the economic, medicinal, and industrial potential** of cannabis. If implemented **effectively and responsibly**, it could position the state as a **leader in the global cannabis industry**, driving **economic growth, job creation, and industrial development** while ensuring **strict regulatory oversight**.



## 2 RBI's Liquidity Boost: Key Measures to Stabilize the Banking System

**Context:** The Reserve Bank of India (RBI) has announced **enhanced liquidity measures** to address the **liquidity crunch** in the **banking system**. These steps aim to **inject liquidity**, counter **rupee depreciation**, and stabilize **monetary conditions**.

**Key Liquidity Measures by RBI:**

### 1. USD/INR Swap Auction:

- RBI will conduct a **six-month USD/INR buy/sell swap auction** worth **\$5 billion** on **January 31, 2025**.
- Under this, banks will **sell US dollars** to RBI in exchange for **rupee liquidity**, which will be **reversed after six months** with a **premium**.

### 2. Open Market Operations (OMO) Purchases:

- The RBI will conduct **Open Market Operation (OMO) purchases** of **Government Securities (G-Secs)** worth **60,000 crore**.
- This will happen in **three tranches** of **20,000 crore** each on **January 30, February 13, and February 20, 2025**.

### 3. Variable Rate Repo (VRR) Auction:

- A **56-day Variable Rate Repo (VRR) auction** for **50,000 crore** will be conducted.
- This marks the **first time** RBI is conducting such a **long-tenor VRR auction**.

**Why These Measures?**

**Addressing the Liquidity Deficit:**

- These steps will **inject approximately 1.50 lakh crore** into the banking system between **January 30 and February 20, 2025**.
- The **liquidity shortfall** is due to:
  - Rupee depreciation**
  - Limited government spending**
  - Tax outflows**
- The current **liquidity deficit** is estimated at **3 lakh crore**, necessitating **immediate intervention**.

**Challenges in Liquidity Management:**

- Government Over-Borrowing**
  - Excessive **government borrowing** and **investing surplus cash** can disrupt **liquidity balance**.
- Weak Cash Management**
  - Poor cash flow planning** can lead to **prolonged liquidity imbalances**, affecting RBI's ability to **manage debt and monetary policy**.

**The Way Forward:**

**Stronger Coordination Between RBI & Government**

- A **coordinated fiscal approach** is crucial to **prevent liquidity shocks**.

**Flexible & Agile Liquidity Management**

- RBI remains **committed to dynamic liquidity management** to ensure **financial stability**.

**Market Monitoring & Policy Adjustments**

- RBI will **continuously monitor** liquidity trends and take **further action if needed** to maintain **orderly market conditions**.

**Conclusion**

The **RBI's proactive liquidity measures** highlight its **commitment to stabilizing the financial system**. By ensuring **adequate liquidity**, these steps will **support economic stability**, counter **liquidity shortages**, and **strengthen financial markets**.

3

## India's Own AI Revolution: Developing a Homegrown Large Language Model (LLM)

**Context:** The Indian government has embarked on an ambitious mission to develop its own **Large Language Model (LLM)** as part of the ₹10,370 crore **IndiaAI Mission**. This initiative aims to build a **homegrown AI ecosystem** tailored to India's **diverse languages, culture, and needs**.

### Key Highlights of India's AI LLM Project:

#### 1. Indigenous AI Model Development:

- The project focuses on creating an **India-specific AI system** that truly represents the country's **linguistic and cultural diversity**.
- The development of the **foundational model** is expected to take **4-8 months**.
- The **government's AI compute facility** will be among the **most cost-effective** globally.



#### 2. Infrastructure & GPU Supply:

- **10 companies** have been selected to supply **18,693 high-end GPUs (Graphics Processing Units)**, which are **crucial for training AI models**.
- GPUs are used for **large-scale data processing, machine learning, and deep learning** applications.
- Plans are in place to set up **AI data centers in Odisha**, fostering **AI-driven research and innovation**.
- By making **high-performance GPUs available**, students and researchers will have the tools to **develop large-scale AI models** rather than working in **fragmented, ad-hoc setups**.

### IndiaAI Mission: Transforming AI Development:

#### Key Initiatives Under IndiaAI Mission:

Over the next five years, the mission will support:

- **IndiaAI Compute Capacity**
- **IndiaAI Innovation Centre (IAIC)**
- **IndiaAI Datasets Platform**
- **IndiaAI Application Development Initiative**
- **IndiaAI FutureSkills Program**
- **IndiaAI Startup Financing**
- **Safe & Trusted AI Framework**

#### Objective:

The mission aims to:

- Foster **India's leadership in AI** globally.
- Promote **technological self-reliance**.
- Ensure **ethical and responsible AI deployment**.
- Make **AI benefits accessible** across all sections of society.



## What Are Large Language Models (LLMs)?

LLMs are **advanced AI models** designed to **understand and generate human language** using **deep learning techniques**.

### Applications of LLMs:

- **Text Generation**
- **Language Translation**
- **Summarization & Content Creation**
- **Conversational AI (Chatbots, Virtual Assistants)**

### Why India Needs Its Own AI Model?

1. **Reducing Dependence on Foreign AI:** Developing an **indigenous AI model** will help India **reduce reliance on foreign tech** and boost **self-sufficiency**.
2. **Enhancing Data Security & Privacy:** A **domestically built AI** ensures **better control over data**, minimizing risks associated with **data privacy and misuse**.
3. **Supporting India's Linguistic Diversity:** The LLM will be **designed to support multiple Indian languages**, ensuring inclusivity and accessibility.
4. **Eliminating Biases in AI:** India's AI model will be trained to **reflect the country's true diversity**, eliminating **cultural or ideological biases** found in foreign AI systems.

### Conclusion:

India's move to develop its **own AI-powered Large Language Model** marks a **game-changing shift** in its **technological landscape**. With **cutting-edge infrastructure**, **government support**, and a **focus on innovation**, this initiative will position India as a **global leader in AI**, driving **economic growth**, **digital transformation**, and **technological independence**.

## 4 SC Bans Manual Scavenging in Six Major Cities – A Historic Verdict

**Context:** The Supreme Court of India has issued a landmark ruling, prohibiting manual scavenging and manual sewer cleaning in six metropolitan cities. This decision comes in response to a writ petition aimed at eradicating this inhumane practice across the country.



### What is Manual Scavenging?

**Manual scavenging** refers to the dangerous and degrading practice of manually cleaning and disposing of human excreta from dry latrines, open drains, septic tanks, and sewers. This hazardous occupation disproportionately affects marginalized communities, especially Dalits.

### Current Status of Manual Scavenging in India

Despite being legally banned, manual scavenging continues due to loopholes and poor enforcement. Alarming Statistics (2018-2023):

- 443 deaths reported due to manual scavenging (Ministry of Social Justice and Empowerment).
- Delhi alone recorded 94 deaths over the last 15 years, yet only one conviction was made.
- Caste Disparity:
  - 97% of manual scavengers belong to Scheduled Castes (SCs):
    - 42,594 from SCs
    - 421 from Scheduled Tribes (STs)
    - 431 from Other Backward Classes (OBCs)

### Challenges and Issues:

#### Continued Existence Despite Ban:

- Workers are often hired informally under contractual arrangements, bypassing legal restrictions.
- Lack of mechanization forces workers to clean sewers manually, exposing them to toxic gases and fatal accidents.
- Rehabilitation efforts under the 2013 Act have been poorly implemented.
- Deep-rooted caste discrimination keeps Dalits trapped in this degrading occupation.

### Laws & Regulations Against Manual Scavenging:

#### Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act, 2013

- Bans manual scavenging in all forms.
- Criminalizes the employment of manual scavengers.
- Mandates mechanization of sewer cleaning.

#### Supreme Court Interventions:

- 2014 (Safai Karamchari Andolan v. Union of India) – SC ordered 10 lakh compensation for the families of deceased manual scavengers.
- 2020 – SC directed stricter implementation of mechanized sewer cleaning.

**Constitutional Provisions:**

- **Article 17** – Abolishes untouchability.
- **Article 21** – Guarantees **right to life and dignity**.
- **Article 23** – Prohibits forced labor.
- **Article 42** – Ensures **humane working conditions**.

**Government Initiatives to Eliminate Manual Scavenging:****NAMASTE Scheme (2023):**

- Focuses on **mechanizing sewer cleaning**.
- Provides **skill training** and **alternative employment opportunities**.

**Swachh Bharat Abhiyan:**

- Aims to **replace dry latrines** with **modern sanitation facilities**.
- Promotes **mechanized cleaning equipment** to eliminate human involvement.
- **Self-Employment Scheme for Rehabilitation of Manual Scavengers (SRMS)**
- Provides **40,000 financial aid** to former manual scavengers.
- Offers **skill training** for alternative livelihood options.

**Way Forward: Eradicating Manual Scavenging for Good:**

- ✓ **Strict enforcement** of the **2013 Act** with **heavy penalties** for violators.
- ✓ **Accelerate the adoption** of **mechanized cleaning methods** using **robots and advanced machines**.
- ✓ **Ensure full rehabilitation** of manual scavengers through **financial support and employment training**.
- ✓ **Raise awareness** to eliminate the **caste-based stigma** attached to sanitation work.

This **Supreme Court ruling** marks a **crucial step** toward **eradicating manual scavenging** and ensuring **dignity, safety, and justice** for all workers.



## 5 National Critical Mineral Mission (NCMM)

**Context:** The **Union Cabinet** has approved the launch of the **National Critical Mineral Mission (NCMM)** with an estimated expenditure of **16,300 crore**. This mission aims to accelerate the regulatory approval process for **critical mineral mining projects** in India.



### Mission Objectives:

The **NCMM** is designed to cover the entire **value chain** of critical minerals, including:

- **Exploration**
- **Mining**
- **Beneficiation**
- **Processing**
- **Recovery from end-of-life products**

### Key Features:

- Establishment of **mineral processing parks** to support the **recycling of critical minerals**.
- Encouraging **research in critical mineral technologies** by setting up a **Centre of Excellence on Critical Minerals**.
- Development of a **strategic stockpile** of critical minerals within the country.
- Promoting Indian **PSUs and private sector companies** to acquire **critical mineral assets abroad** and strengthen trade with **resource-rich nations**.

### What Are Critical Minerals?

**Critical minerals** are essential for **economic development and national security**. They are crucial for technological advancements in various industries, including:

- **High-tech electronics**
- **Telecommunications**
- **Transportation**
- **Defense sector**

### Challenges in Supply Chain:

Due to the **limited availability** and **geographical concentration** of these minerals, supply chain vulnerabilities have emerged. This necessitates the development of **value chains** for minerals critical to India's growth.

### Applications of Critical Minerals:

1. **Clean Energy Technologies:**
  - **Zero-emission vehicles**
  - **Wind turbines**
  - **Solar panels**
2. **Advanced Manufacturing:**
  - **Batteries (Cadmium, Cobalt, Lithium)**

- Semiconductors (Gallium, Indium, Selenium)
- Permanent magnets and ceramics

### 3. Defense & Electronics:

- New-age technologies (Beryllium, Titanium, Tungsten, Tantalum)
- Medical devices and cancer treatment (Platinum Group Metals - PGMs)

### India's List of Critical Minerals:

India has identified **30 critical minerals**, including: **Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, Phosphorous, Potash, Rare Earth Elements (REE), Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium, and Cadmium.**

### Global Collaboration: Minerals Security Partnership (MSP):

India is a member of the **Minerals Security Partnership (MSP)**, which includes **23 global partners** such as **the US, EU, Japan, Australia, Canada, and others.** This partnership aims to facilitate **public and private investments** in critical mineral supply chains worldwide.

### India's Initiatives to Secure Critical Minerals:

1. **Mines and Minerals (Development and Regulation) Act, 1957:** Amended in **2023** to promote **exploration and mining** of critical minerals.
2. **Geological Survey of India (GSI):**
  - Conducted **368 exploration projects** in the past three years.
  - **195 projects** currently underway in **FY 2024-25.**
  - Plans for **227 new projects** in **FY 2025-26.**
3. **KABIL (Khanij Bidesh India Ltd.):** A joint venture under the **Ministry of Mines**, acquiring **15,703 hectares** in **Argentina's Catamarca province** for **Lithium exploration.**
4. **Custom Duty Reforms:** The **Union Budget 2024-25** eliminated **custom duties** on most **critical minerals**, encouraging the **establishment of processing facilities** in India.

### Future Roadmap:

India is actively collaborating with **resource-rich countries** to secure its mineral supply:

- **Tanzania – Niobium, Graphite**
- **Zimbabwe – Lithium**
- **Congo & Zambia – Copper, Cobalt**

With India's commitment to **energy transition** and achieving **net-zero emissions by 2070**, securing a **steady supply of critical minerals** will be pivotal for **sustainable economic growth** and **technological advancement.**

6

## Liquid Propulsion Systems of ISRO

**Context:** Recently, ISRO appointed M. Mohan as the Director of the Liquid Propulsion Systems Centre (LPSC) in Thiruvananthapuram.

**Understanding Liquid Propulsion Systems:**

Liquid propulsion systems utilize **liquid propellants**, such as **Liquid Oxygen (LOX)** and **Liquid Hydrogen (LH<sub>2</sub>)**, to produce **thrust**. These systems offer several advantages over solid propulsion, including:

- **Higher efficiency**
- **Better controllability**
- **Capability to restart multiple times**

**ISRO's Liquid Propulsion Systems Centre (LPSC):**

The LPSC is a key ISRO facility dedicated to the **design, development, and implementation** of liquid propulsion stages for **launch vehicles**. It operates through two major centers:

- **Thiruvananthapuram (Valiamala)** – Focuses on **rocket propulsion**
- **Bengaluru** – Specializes in **satellite propulsion systems**

**Recent Developments in Liquid Propulsion:****1. Gaganyaan Mission:**

- ISRO has incorporated **advanced liquid propulsion** in the **Crew Module** for the first **uncrewed mission** of Gaganyaan.
- The **Crew Module Propulsion System (CMPS)** is a **bi-propellant-based Reaction Control System (RCS)** that ensures **precise three-axis control (pitch, yaw, and roll)** during **descent and re-entry**.

**2. Cryogenic Upper Stage for GSLV:**

- ISRO has **indigenously developed** a **cryogenic upper stage** for the **Geosynchronous Satellite Launch Vehicle (GSLV)**.
- This development has significantly **boosted India's capability** to launch **heavier payloads into space**.

**3. Satellite Propulsion Systems:**

- The LPSC is also responsible for the development of **propulsion systems for satellites**.
- This includes **monopropellant thrusters** and **components for satellite control and maneuvering**.

**Conclusion:**

India's advancements in **liquid propulsion technology** have bolstered its **space exploration** capabilities, making ISRO a global leader in **rocket and satellite propulsion**. The LPSC continues to play a pivotal role in enhancing **India's space missions** with cutting-edge **propulsion technologies**.

