



Daily PIB Summary

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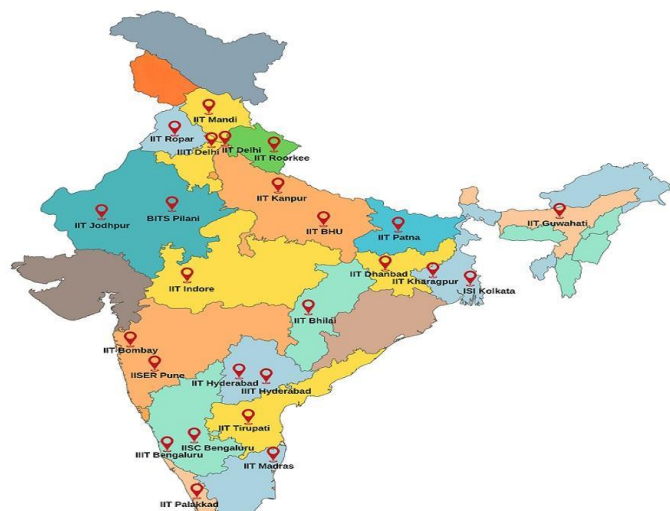
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1. S&T CLUSTER ANNUAL REPORT 2025–2026



Map courtesy: Survey of India, GOI

- The report highlights the work and achievements of India's **Science & Technology (S&T) Clusters**.
- S&T Clusters bring together **academia, research institutions, industry, startups and government** to address regional and national challenges.
- The initiative aims to strengthen **innovation, technology transfer and industry-academia collaboration**.

BACKGROUND / CONTEXT

What are S&T Clusters?

- S&T Clusters are collaborative ecosystems that connect different stakeholders within a region.
- They seek to convert **research and scientific knowledge into practical solutions**.
- The approach promotes collaboration instead of isolated institutional research.

Role of the PSA

- The **Principal Scientific Adviser to the Government of India** provides scientific and technological advice to the government and supports mechanisms that strengthen India's innovation ecosystem.

KEY POINTS

- The annual report documents:
 - Major achievements of S&T Clusters.

- Research and innovation initiatives.
 - Technology-development efforts.
 - Industry and startup collaborations.
 - Contributions towards solving local and national challenges.
- Clusters encourage **multidisciplinary research and technology deployment**.
- They can help bridge the gap between **laboratory research and market applications**.

SIGNIFICANCE

Innovation Ecosystem

- Encourages collaboration among **universities, R&D institutions, industry and startups**.
- Supports development of innovative technologies.

Technology Transfer

- Helps move scientific discoveries from laboratories towards **commercial and societal applications**.

Regional Development

- Regional clusters can address location-specific challenges involving:
 - Agriculture.
 - Healthcare.
 - Environment.
 - Manufacturing.
 - Urban development.

Startup & Industry Linkages

- Provides startups and industries access to scientific expertise and research infrastructure.

CHALLENGES

- Coordination among multiple institutions.
- Converting research into commercially viable products.
- Sustaining funding and infrastructure.
- Protecting intellectual property while encouraging collaboration.

WAY FORWARD

- Strengthen industry participation in S&T clusters.
- Improve technology-transfer mechanisms.
- Promote interdisciplinary research.
- Provide greater access to laboratories and testing facilities for startups and MSMEs.

- Develop measurable outcomes based on **innovation, patents, technology deployment and societal impact.**

PRELIMS BOOSTER BOX

Office of Principal Scientific Adviser

- Provides scientific and technological advice to the **Government of India.**
- Supports coordination of S&T activities across government.
- Works to strengthen India's scientific and innovation ecosystem.

S&T Cluster Model

Academia + R&D + Industry + Startups + Government
→ **Innovation** → **Technology Transfer** →
Societal/Economic Impact

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding Science & Technology Clusters:

1. They seek to facilitate collaboration between academia, research institutions and industry.
2. They can support technology transfer and commercialisation of research.
3. Their functioning is limited exclusively to basic scientific research.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Answer: (b)

2. MMDR AMENDMENT BILL, 2026



- The Bill amends the **MMDR Act, 1957.**

- It strengthens **Union control over mineral-bearing lands.**
- It restricts State Governments from imposing taxes, cess or other levies on **mineral rights and mineral-bearing lands**, except under conditions/restrictions prescribed by the Central Government.
- It also invalidates certain **pending unpaid/recovered retrospective levies**, providing greater fiscal certainty to the mining sector.

BACKGROUND / CONTEXT

MMDR Act, 1957

- The **Mines and Minerals (Development and Regulation) Act, 1957** is the principal legislation governing mining and mineral development in India.
- Section 2 declares **Union control over the regulation of mines and development of minerals** in the public interest.

Why the Amendment?

The Government identifies several problems with the existing framework:

- Multiple taxes, cess and levies.
- Different rates across States.
- Unpredictable levies introduced after mining operations began.
- Retrospective tax demands.
- Higher compliance and production costs.

KEY PROVISIONS

Union Control over Mineral-Bearing Lands

- Mineral-bearing lands will also come under **Union regulatory control.**
- Such lands will be identified according to parameters prescribed by the Central Government.

New Section 9D

- States cannot impose taxes, cess or other levies on **mineral rights or mineral-bearing lands** except according to conditions or restrictions prescribed by the Centre.
- This covers levies based on mineral quantity, value, royalty or other bases.

Past Levies

- Certain levies that remained unpaid or uncollected before commencement of the amendment will be treated as **invalid**.
- Amounts already deposited or recovered will **not be refunded**.

Central Rule-Making Power

- Section 13 is amended to empower the Central Government to prescribe conditions/restrictions governing State levies.

SIGNIFICANCE

- Creates greater **certainty and predictability** in mineral taxation.
- May encourage mineral exploration and investment.
- Reduces the risk of unexpected fiscal burdens on mining operations.
- Can strengthen **domestic mineral and critical-mineral security**.
- May reduce cascading costs that ultimately affect downstream industries and consumers.

CHALLENGES

- Greater centralisation of fiscal control may raise concerns regarding **State autonomy and federalism**.
- States may face reduced flexibility in raising revenue from mineral resources.
- Effective implementation will depend on clear Central rules and coordination with States.

WAY FORWARD

- Ensure transparent and predictable rules for State levies.
- Maintain a balance between **national mineral security and States' fiscal interests**.
- Strengthen sustainable mining and environmental safeguards.
- Use greater fiscal certainty to encourage exploration of **critical minerals**.

PRELIMS BOOSTER BOX

MMDR Act, 1957

MMDR → Mines + Minerals + Development + Regulation

- Principal legislation governing mineral development in India.
- **Section 2:** Union control over regulation of mines and development of minerals.

- **Section 9D:** New provision dealing with restrictions on State levies under the 2026 amendment.

Key Concept

Mineral rights ≠ merely mineral production

The Bill specifically addresses State levies imposed on **mineral rights and mineral-bearing lands**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the MMDR Amendment Bill, 2026:

1. It amends the Mines and Minerals (Development and Regulation) Act, 1957.
2. It introduces Section 9D concerning State levies on mineral rights and mineral-bearing lands.
3. It gives States unrestricted power to impose new taxes on mineral-bearing lands.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) **1 and 2 only**
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer: (b)

3. EDUCATION SUPPORT & SCHOLARSHIP SCHEMES IN LADAKH



- The schemes support ST students from **Class IX to higher education and overseas studies**.
- **Pre-Matric and Post-Matric Scholarships** are Centrally Sponsored Schemes implemented through States/UTs.
- **Top Class Scholarship, NFST and National Overseas Scholarship** are Central Sector

Schemes implemented by the Ministry of Tribal Affairs.

- Scholarships are largely disbursed through **Direct Benefit Transfer (DBT)**.

KEY SCHOLARSHIP SCHEMES

Pre-Matric Scholarship

- For ST students studying in **Classes IX–X**.
- Centrally Sponsored Scheme.

Post-Matric Scholarship

- For ST students from **Class XI onwards**, including post-graduation.
- For eligible students whose parental income is **not more than ₹2.5 lakh per annum**.
- Both Pre- and Post-Matric schemes are **open-ended**, meaning there is no fixed ceiling on the number of eligible selections.

National Scholarship for Higher Education – Top Class

- Supports higher education of ST students in identified institutions.
- Implemented directly by the Ministry of Tribal Affairs.

National Fellowship for Higher Education for ST Students (NFST)

- Provides fellowship support for higher/research education.
- Funds are released directly to students/institutions through DBT.

National Overseas Scholarship (NOS)

- Supports selected ST students pursuing studies abroad.
- Implemented through the **Ministry of External Affairs and Indian Embassies**.

LADAKH: IMPORTANT DATA

- In **2025–26**, the Pre-Matric Scholarship supported **1,394 beneficiaries**, with ₹50 lakh released.
- The Post-Matric Scholarship supported **7,618 beneficiaries**, with about ₹22.46 crore released.
- Under Top Class Scholarship, **71 beneficiaries** received ₹75.74 lakh.
- **58 NFST beneficiaries** received ₹257.75 lakh.
- **1 student** received National Overseas Scholarship support of ₹0.84 lakh.

SIGNIFICANCE

Educational Inclusion

- Helps reduce financial barriers to education among **Scheduled Tribes**.

Higher Education

- Extends support beyond school education to **fellowships and overseas education**.

DBT-Based Delivery

- Direct transfer into bank accounts can reduce intermediaries and improve transparency.

Tribal Development

- Education and higher qualifications can improve employment and socioeconomic opportunities for tribal communities.

CHALLENGES

- Difficult terrain and connectivity issues in Ladakh.
- Awareness and access to scholarship application systems.
- Ensuring timely verification and disbursement.
- Need for continued support for students pursuing higher education.

WAY FORWARD

- Strengthen awareness campaigns in remote tribal areas.
- Improve digital and institutional support for applications.
- Ensure timely DBT payments.
- Expand educational support where demand remains unmet.

PRELIMS BOOSTER BOX

Ministry of Tribal Affairs → 5 major scholarship schemes

Pre-Matric → Class IX–X

Post-Matric → Class XI onwards

Top Class → Higher education

NFST → Higher/research education

NOS → Overseas education

Key distinction:

- **Centrally Sponsored:** Pre-Matric + Post-Matric
- **Central Sector:** Top Class + NFST + NOS

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Pre-Matric and Post-Matric Scholarships for ST students are Centrally Sponsored Schemes.
2. National Fellowship for Higher Education for ST Students is a Central Sector Scheme.
3. National Overseas Scholarship for ST students supports eligible students pursuing education abroad.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Answer: (d)

4. ENVIRONMENTAL OUTCOMES OF BIOE3 POLICY



- **BioE3 = Biotechnology for Economy, Environment and Employment.**
- The policy promotes **biomanufacturing** as a pathway towards a **low-carbon and circular bioeconomy**.
- Focus areas include replacing fossil-based inputs, converting waste into useful products, reducing GHG emissions and developing indigenous clean technologies.

BACKGROUND / CONTEXT

BioE3 Policy

- I. Implemented by the **Department of Biotechnology (DBT), Ministry of Science & Technology**.
- II. Uses biotechnology to create solutions that simultaneously support:
 - A. Economic growth
 - B. Environmental sustainability
 - C. Employment generation

- III. Emphasises technology development, scale-up and commercialisation.

KEY ENVIRONMENTAL OUTCOMES

Replacing Fossil-Based Inputs

- Development of bio-based alternatives to **fossil-derived chemicals, materials and fuels**.
- Helps reduce dependence on fossil resources.

Waste-to-Value

- I. Agricultural residues, municipal organic waste and industrial biogenic waste can be converted into:
 - A. Advanced fuels
 - B. Specialty chemicals
 - C. Biomaterials

Sustainable Aviation Fuel

- Projects are being supported to convert **lignocellulosic, industrial and organic waste** into sustainable aviation fuels.

Ecosystem Restoration

- Interventions include **biorecovery of degraded ecosystems such as the Sunderbans**.
- Molecular tools are also being developed for protected-area conservation.

Lower GHG Emissions

- BioE3 interventions are aligned with India's **carbon-emission reduction and Net Zero commitments**.

BIO-ENABLERS

The policy promotes platforms such as:

- **Bio-foundries** → accelerate development and scale-up of biomanufacturing.
- **Bio-AI Hubs** → combine biotechnology and artificial intelligence.
- Strengthening **biomass supply chains**.
- Development of **biocatalysts, microbial bioprocesses and integrated biorefineries**.

SUJIVIKA PORTAL

- **Sujivika**, launched by DBT, provides **biotech import data**.
- It can help identify products that could be developed domestically using bio-based alternatives.

- This supports **Atmanirbhar Bharat** and reduction of import dependence.

SIGNIFICANCE

- Promotes a shift from a **fossil-based economy towards a bio-based economy**.
- Links **circular economy + biotechnology + climate action**.
- Creates opportunities for sustainable fuels, chemicals and materials.
- Strengthens India's indigenous biomanufacturing capabilities.

CHALLENGES

- Scaling technologies from laboratory to commercial levels.
- Ensuring sustainable biomass availability.
- Maintaining cost competitiveness with fossil-based products.
- Developing appropriate regulatory and safety frameworks.

WAY FORWARD

- Increase pilot and demonstration-scale projects.
- Strengthen bio-refinery and biomass supply chains.
- Promote industry-academia collaboration.
- Establish clear environmental performance indicators.
- Scale technologies that demonstrate measurable **GHG reduction and waste-to-value outcomes**.

PRELIMS BOOSTER BOX

BioE3 → Biotechnology for Economy, Environment & Employment

Key environmental themes:

Fossil replacement + Waste-to-value + GHG reduction + Circular bioeconomy + Ecosystem restoration

Important institutions/platforms:

- **DBT**
- **Bio-foundries**
- **Bio-AI Hubs**
- **Sujivika**

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the BioE3 Policy:

1. It promotes biomanufacturing and bio-based alternatives to fossil-derived inputs.
2. Conversion of agricultural and organic waste into fuels and biomaterials is among its focus areas.
3. The policy is limited exclusively to environmental conservation and has no economic or employment objectives.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Answer: (b)

5. ZERO-LITIGATION PENSION ECOSYSTEM



- The **Department of Pension and Pensioners' Welfare (DoPPW)** is the nodal department for policies relating to pensions and retirement benefits of Central Government civil employees.
- Pension litigation is handled separately by the concerned Ministries/Departments.
- The Government is focusing on **grievance redressal, coordination, systemic reforms and clarification of pension rules** to reduce litigation.

- **Pension Adalats, Special Campaign 3 and Inter-Ministerial Review Meetings** are being used to resolve long-pending cases.

KEY INITIATIVES

National Workshop on Pension

Litigation

- I. Focuses on:
 - A. Better coordination.
 - B. Capacity building of nodal officers and panel lawyers.
 - C. Monitoring of pension-related litigation.
 - D. Sharing best practices.
 - E. Systemic reforms and grievance redressal.

Pension Adalats

- Provide a mechanism to resolve **pensioners' grievances** without requiring prolonged litigation.
- Aim to settle recurring and long-pending pension issues.

Special Campaign 3

- Focuses on clearing **long-pending grievances and claims**.
- Early resolution reduces the need for pensioners to approach courts.

Inter-Ministerial Review Meetings

- Used to review and resolve persistent pension-related grievances across Ministries/Departments.

Office Memoranda

- DoPPW issues clarifications on pension rules based on queries from Ministries and Departments.
- This helps ensure **uniform interpretation of rules** and reduces avoidable disputes.

PENSION RULES

CCS (Pension) Rules

- The **Central Civil Services (Pension) Rules, 1972** were subsequently revised through the **CCS (Pension) Rules, 2021**.
- **Rule 50** of the 2021 Rules provides for family pension for various categories of family pensioners, including **divorced and disabled daughters**.

SIGNIFICANCE

- **Pensioner-centric governance:** Faster resolution of retirement-benefit disputes.
- **Ease of living:** Reduces the burden of repeated departmental and judicial proceedings.
- **Good governance:** Encourages proactive resolution instead of litigation.
- **Administrative efficiency:** Identifies recurring rule-related issues and enables systemic correction.
- **Legal certainty:** Better coordination and clear rule interpretation can prevent avoidable disputes.

CHALLENGES

- Pension litigation is **not centrally handled** by a single department.
- Different Ministries/Departments handle their respective cases.
- Recurring interpretation issues can generate repeated litigation.
- Long-pending grievances require effective inter-departmental coordination.

WAY FORWARD

- Strengthen pre-litigation grievance resolution.
- Create better coordination among Ministries and legal officers.
- Use data to identify **recurring pension disputes** and fix their root causes.
- Provide clearer and easily accessible pension rules and FAQs.
- Strengthen digital tracking of grievances and litigation.

PRELIMS BOOSTER BOX

DoPPW → Nodal department for Central Government civil pension policy

Pension Adalat → Grievance resolution

Special Campaign 3 → Long-pending grievances

CCS Pension Rules, 2021 → Current framework

Rule 50 → Family pension provisions

Core Idea

Prevent grievance → Resolve administratively →

Avoid litigation → Improve pensioners' welfare

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Department of Pension and Pensioners' Welfare is the nodal department for policies relating to pensions of Central Government civil employees.
2. Pension Adalats are intended to help resolve pension-related grievances.
3. Pension litigation involving the Central Government is centrally handled by the Department of Pension and Pensioners' Welfare.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) **1, 2 and 3**

Answer: (a)