# PrepAlpine

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**PrepAlpine**

Email: info@PrepAlpine.com

Website: PrepAlpine.com

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# DAILY CURRENT AFFAIRS DATED 12.02.2026

## GS Paper III: Economics

## 1. 16th Finance Commission and Fiscal Federalism in India

### a. Introduction

Fiscal federalism refers to the financial relationship between different levels of government in a federal system. In India, it determines how revenue is raised and how it is shared between the Union and the States. Since States are responsible for critical sectors such as health, education, agriculture, irrigation, and law and order, a fair and predictable system of financial distribution is essential for balanced development.

The Constitution provides for a periodic review of this arrangement through the Finance Commission under Article 280. The Sixteenth Finance Commission (16th FC), chaired by Dr. Arvind Panagariya, has submitted its recommendations for the period 2026–2031. Its report has reignited debates on vertical devolution, horizontal distribution, and the increasing use of cess and surcharge by the Union government.

### b. Constitutional Framework of Fiscal Federalism

#### i. Article 270

- Provides for the distribution of net proceeds of certain central taxes between the Union and the States.

#### ii. Article 280

- Mandates the President to constitute a Finance Commission every five years.
- The Commission recommends the sharing formula of taxes and grants-in-aid.

The Finance Commission thus acts as a constitutional balancing mechanism in Centre–State financial relations.


### c. The Divisible Pool of Taxes

The divisible pool consists of taxes whose net proceeds are shared between the Union and the States.

#### i. Taxes Included

- Corporation tax
- Personal income tax
- Central component of GST
- Centre's share of Integrated GST
- Union excise duties

#### ii. Exclusion of Cess and Surcharge

- Cess and surcharge are levied for specific purposes.
- They are retained entirely by the Union government.

- They are excluded from the divisible pool.

After excluding cess and surcharge, roughly 80% of gross tax revenue forms part of the divisible pool in recent years. The growing reliance on these levies has become a major source of friction in fiscal federal debates.

This brings us to the issue of vertical devolution, which determines how much of this divisible pool goes to States collectively.

### d. Vertical Devolution: Share of States

Vertical devolution refers to the division of tax revenue between the Union and all States combined.

#### i. Evolution of States' Share

- 13th Finance Commission – 32%
- 14th Finance Commission – 42% (major increase)
- 15th Finance Commission – 41% (reduced due to J&K reorganisation)
- 16th Finance Commission – Retained at 41% (2026–31)

#### ii. Rationale for Retaining 41%

- States already account for a large share of public expenditure.
- Centrally Sponsored Schemes supplement State finances.
- Union faces rising commitments in defence, infrastructure and national security.

The Commission chose continuity over expansion, preferring fiscal stability.

However, several States were dissatisfied with this decision.

### e. Demands of States

#### i. Demand for Higher Share

- Many States demanded an increase to 45–50%.
- Argument: States bear major welfare and development responsibilities.

#### ii. Inclusion of Cess and Surcharge

- States sought inclusion of cess and surcharge in the divisible pool.
- Alternatively, they demanded a cap on such levies.

#### iii. Commission's Response

- Inclusion of cess is not constitutionally mandated.
- Cess may be necessary for urgent national priorities.
- However, the Commission advised gradual reduction in excessive reliance.

Thus, while the vertical share remains unchanged, the debate shifts to how the 41% is distributed among States — the issue of horizontal devolution.

### f. Horizontal Devolution: Distribution Among States

Horizontal devolution refers to how the States' collective share is divided among individual States.

#### i. Criteria Used by the 16th Finance Commission

The formula includes:

- Income distance

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- Population (1971 and 2011 Census)
- Area
- Forest and ecology
- Demographic performance
- Contribution to national output (new criterion)

**ii. Income Distance (Equity Principle)**

- Measures gap between a State's per capita income and that of the richest State.
- Larger the gap, higher the allocation.
- Supports less developed States.

This reflects the constitutional principle of balanced regional development.

**iii. Introduction of Growth/Efficiency Criterion**

- A 10% weight given to contribution to national output.
- Recognises economically productive States.
- Addresses long-standing demands of industrialised States.

Thus, the formula attempts to balance equity (supporting poorer States) and efficiency (rewarding growth).

### g. Demands of Industrialised States

States such as Maharashtra, Gujarat, Tamil Nadu, Karnataka and Telangana argued:

- Existing formula overly rewards lower-income States.
- Limited recognition of economic efficiency.
- Need to incentivise growth and fiscal responsibility.

The introduction of the national output criterion provides modest relief, though the overall structure remains continuity-based.

### h. Broader Issues in Fiscal Federalism

**i. Rising Use of Cess and Surcharge**

- Reduces effective size of divisible pool.
- Weakens spirit of cooperative federalism.

**ii. Equity vs Efficiency Debate**

- Poorer States require redistribution support.
- Developed States seek reward for performance.

Balancing these competing principles remains a persistent challenge.

**iii. Rising Public Debt**

- High fiscal deficits at Union and State levels.
- Concerns about long-term fiscal sustainability.

Thus, fiscal federalism is not merely about percentages but about sustainability and accountability.

### i. Key Recommendations of the 16th Finance Commission

**i. For the Union**

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- Gradually reduce dependence on cess and surcharge.
- Maintain fiscal prudence.

**ii. For the States**

- Reform power sector finances.
- Improve subsidy targeting.
- Maintain fiscal discipline and prudent debt management.
- Restructure inefficient public sector enterprises.

The Commission links financial devolution with responsible fiscal behaviour.

### j. Overall Assessment

- Vertical devolution remains unchanged at 41%.
- Horizontal devolution introduces modest recognition of growth.
- Equity remains the dominant principle.
- Continuity preferred over radical restructuring.

The 16th Finance Commission adopts a cautious, stability-oriented approach.

### Conclusion

The Sixteenth Finance Commission reflects continuity with calibrated reform. By retaining the 41% vertical share and introducing a growth-oriented criterion in horizontal allocation, it seeks to balance equity and efficiency.

However, the real strength of fiscal federalism lies beyond allocation percentages. It depends on reducing excessive reliance on cess, strengthening fiscal discipline, improving cooperative federalism, and ensuring that financial transfers promote both balanced development and accountability.

Sustainable fiscal federalism requires not only redistribution but also responsible governance at both Union and State levels.

## GS Paper III: Science and Technology

## 2. India's New Telescopes: Advancing Observational Astronomy

### a. Introduction

Astronomy is the scientific study of the Sun, stars, planets, galaxies and the universe. It depends heavily on telescopes, which collect light from distant objects and help scientists analyse their structure and behaviour.

Recognising the importance of advanced observational capability, the Union Budget approved:

- The National Large Solar Telescope (NLST)
- The National Large Optical–Near Infrared Telescope (NLOT)
- Upgradation of the Himalayan Chandra Telescope (HCT)

These projects, mainly located in Ladakh, mark a significant expansion of India's scientific infrastructure. They move India from moderate observational capability toward participation in cutting-edge global astronomy.

Before understanding their scientific role, it is important to examine why Ladakh has been chosen as the site.

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### b. Why Ladakh Is Ideal for Astronomy

Astronomical observations are affected by the Earth's atmosphere. Atmospheric turbulence bends and scatters light, reducing image clarity. The thinner and more stable the air, the sharper the image.

- **High altitude**
  Thinner atmosphere reduces distortion.
- **Cold and dry climate**
  Less water vapour improves infrared observations.
- **Clear skies for most of the year**
  More observation nights available annually.
- **Minimal light pollution**
  Less interference from artificial lighting.

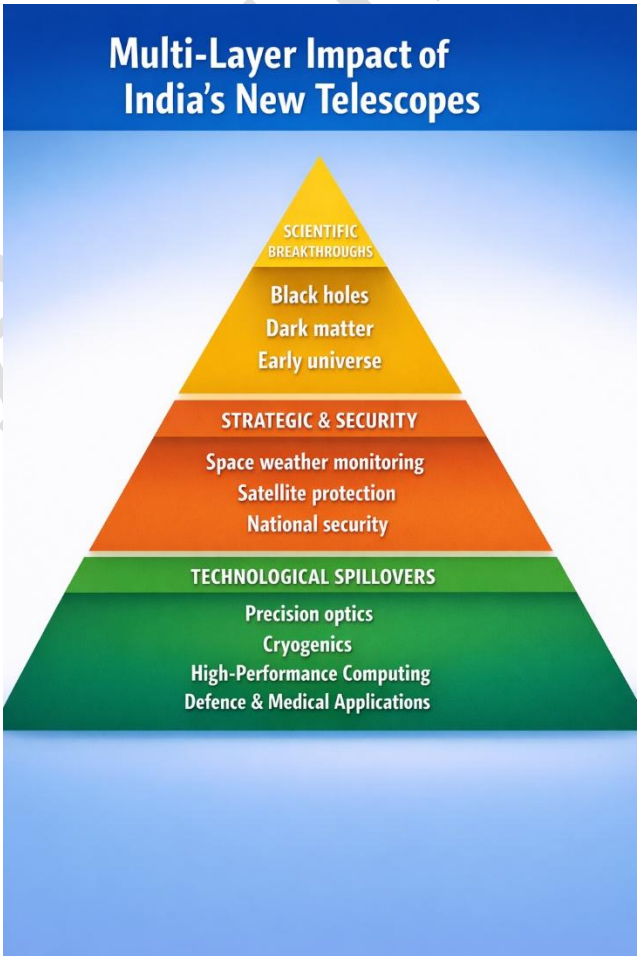
In simple terms, clearer and thinner air allows telescopes to capture sharper and more detailed images of distant objects.

With this geographical advantage, India plans to deploy three major observational facilities.

### c. Overview of the Three Projects

- National Large Solar Telescope (NLST) – Focus on detailed study of the Sun.
- National Large Optical–Near Infrared Telescope (NLOT) – Study distant stars, galaxies and exoplanets.
- Himalayan Chandra Telescope (HCT) – Existing telescope to be upgraded for greater capacity.

Together, these facilities expand India's capabilities in solar physics, optical astronomy and infrared astronomy.




### d. National Large Solar Telescope (NLST)

#### i. Technical Features

**Two-metre aperture**

- Aperture refers to the diameter of the main mirror.
- Larger aperture collects more light and provides better resolution.

**Location:** Merak near Pangong Tso (Ladakh).

Operates in visible and near-infrared wavelengths.

#### ii. Scientific Objectives

- Study solar magnetism.
- Observe solar flares and coronal mass ejections (CMEs).
- Improve understanding of space weather.

Space weather refers to disturbances in space caused by solar activity. Strong solar storms can disrupt:

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- Satellites
- GPS systems
- Communication networks
- Power grids

**iii. Complementarity with Aditya-L1**

- Aditya-L1 studies the Sun from space.
- NLST will provide high-resolution ground-based data.

Together, they form a comprehensive solar observation system.

Thus, NLST strengthens both scientific research and space security.

## e. National Large Optical–Near Infrared Telescope (NLOT)

**i. Technical Design**

**Segmented mirror design**

- Around 90 smaller mirrors combined.
- Functions like a single 13.7-metre mirror.

Segmented mirrors solve engineering challenges of building very large single mirrors.

A larger effective mirror allows observation of extremely faint and distant objects.

**ii. Scientific Objectives**

- Study exoplanets — planets outside our solar system.
- Understand stellar evolution — life cycle of stars.
- Observe supernova explosions.
- Study galaxy formation and early universe.

**iii. Global Significance**

- Fills an observational gap in Asia.
- Enables continuous sky coverage when combined with observatories in Europe and the Americas.
- Enhances India's leadership in global astronomy collaborations.

The NLOT positions India among countries operating world-class optical observatories.

## f. Upgradation of the Himalayan Chandra Telescope (HCT)

**i. Background**

- Operational for about 25 years.
- Originally equipped with a two-metre mirror.

**ii. Planned Upgradation**

- Upgrade to a 3.7-metre segmented mirror system.
- Increased light-gathering capacity and resolution.

**iii. Scientific Contribution**

- Study transient astronomical events.

Transient events are short-lived phenomena such as:

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- Gamma-ray bursts
- Sudden stellar explosions
- Variable stars

Upgradation ensures cost-effective enhancement while maintaining continuity in research.

## g. Scientific and Strategic Significance

### i. Advancement of Frontier Science

- Research on black holes, dark matter and dark energy.
- Contribution to global astrophysics discoveries.
- Reduced dependence on foreign observatories.

### ii. Space Security

- Improved monitoring of solar storms.
- Protection of satellite infrastructure.
- Safeguarding communication and navigation systems.

### iii. Technological Spillovers

Building large telescopes requires:

- Precision optics
- Advanced instrumentation
- Cryogenic systems
- High-performance computing

These technologies have applications in defence, medical imaging and advanced manufacturing.

### iv. International Collaboration

India already participates in:

- LIGO-India — gravitational wave detection
- Square Kilometre Array — radio astronomy

New optical telescopes strengthen India's role in scientific diplomacy and global research networks.

## h. Challenges

### i. Logistical Difficulties

- Harsh weather conditions in Ladakh.
- Remote terrain and limited accessibility.

### ii. Financial and Time Constraints

- High capital investment.
- Long gestation period (5–10 years).

### iii. Human Resource Requirements

- Need for highly trained scientists and engineers.
- Sustained investment in research institutions.

Thus, long-term commitment is essential for successful implementation.

## Conclusion

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The establishment of the National Large Solar Telescope and the National Large Optical–Near Infrared Telescope, along with the upgradation of the Himalayan Chandra Telescope, marks a transformative phase in India's scientific infrastructure.

By leveraging Ladakh's geographic advantages, India is positioning itself as a major centre for solar and optical astronomy. These facilities will deepen understanding of the Sun, stars and the universe while strengthening technological capability, space security and international collaboration.

In the long run, these telescopes represent not merely research instruments but symbols of India's scientific ambition and strategic foresight.

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## Reader's Note — About This Current Affairs Compilation

Dear Aspirant,

This document is part of the PrepAlpine Current Affairs Series — designed to bring clarity, structure, and precision to your daily UPSC learning.

While every effort has been made to balance depth with brevity, please keep the following in mind:

**1. Orientation & Purpose**

This compilation is curated primarily from the UPSC Mains perspective — with emphasis on conceptual clarity, analytical depth, and interlinkages across GS papers.

However, the PrepAlpine team is simultaneously developing a dedicated Prelims-focused Current Affairs Series, designed for:

- factual coverage
- data recall
- Prelims-style MCQs
- objective pattern analysis

This Prelims Edition will be released separately as a standalone publication.

**2. Content Length**

Some sections may feel shorter or longer depending on topic relevance and news density.
To fit your personal preference, you may freely resize or summarize sections using any LLM tool (ChatGPT, Gemini, Claude, etc.) at your convenience.

**3. Format Flexibility**

The formatting combines:

- paragraphs
- lists
- tables
- visual cues

—all optimised for retention.

If you prefer a specific style (lists → paras, paras → tables, etc.), feel free to convert using any free LLM.

**4. Monthly Current Affairs Release**

The complete Monthly Current Affairs Module will be released soon, optimized to a compact 100–150 pages — comprehensive yet concise, exam-ready, and revision-efficient.

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