NEXT IAS

DAILY NEWS ANALYSIS

21st April

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Daily News Analysis: https://bit.ly/4ge9BgF

EXPLAINED

1. CLOUDBURST

Relevance: GS1/ Geography

Backdrop: Cloudburst havoc in J&K

About : A cloudburst is a localised but intense rainfall activity. Short spells of very heavy rainfall over a small geographical area can cause widespread destruction, especially in hilly regions where this phenomenon is the most common.

Definition:

Not all instances of very heavy rainfall, however, are cloudbursts.

A cloudburst has a very specific definition: **Rainfall of 10 cm or more in an hour** over a roughly **10 km x 10-km area** is classified as a cloudburst event.

By this definition, **5 cm of rainfall in a half hour period over the same area would also be categorized as a cloudburst.**

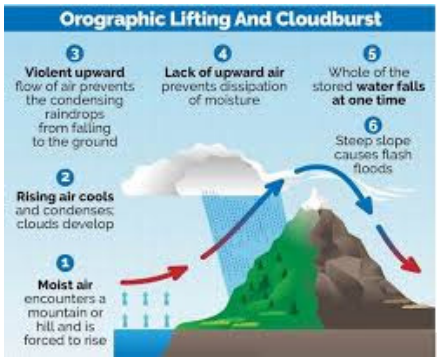
During a cloudburst event, **a place receives about 10% of this annual rainfall within an hour.**

Meteorological Mechanism

Key Factors Behind a Cloudburst:

Orographic Lift

- Moist air is forced to ascend when it encounters mountain slopes.
- As air rises, it cools and condenses rapidly, forming dense cumulonimbus clouds.



Convective Activity

- Intense surface heating causes rapid upward movement of moist air.
- Vertical development of clouds leads to supercooled droplets.

Wind Shear and Atmospheric Instability

- Vertical wind shear may trap moisture at high altitudes.
- Instability caused by interaction of monsoonal flow and westerlies.

Blocked Moisture-Laden Winds

- Narrow valleys or closed topography trap clouds, preventing dispersion.
- Saturated clouds then unload water in a short burst.

Microphysics of Clouds

- Presence of a large number of supercooled droplets and ice crystals.
- Latent heat of condensation adds energy to the system.

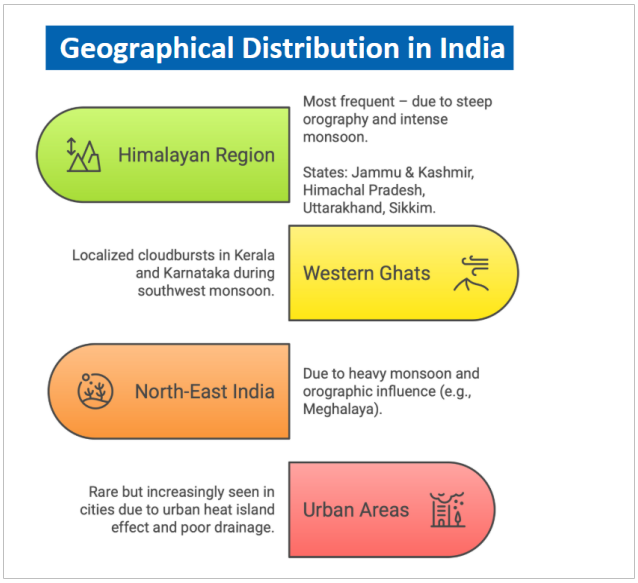
Favorable Conditions for Cloudburst

Factor	Description
Terrain	Mountainous/hilly areas (e.g., Himalayas, Western Ghats)
Moisture	Abundant monsoonal or cyclonic moisture
Wind	Slow-moving or stagnant weather systems
Season	Mostly in monsoon (June–September)
Time of Day	Common in early morning or late evening due to diurnal heating cycle

Cloudburst vs Conventional Rainfall

Parameter	Cloudburst	Normal Rain
Duration	15 minutes to 1 hour	Several hours to days
Intensity	>100 mm/hour	5–50 mm/hour
Area	Highly localized	Regional/ Widespread
Predictability	Very low	Moderate to high

Consequences	Flash floods, landslides, infrastructure collapse	Typically less extreme



Mitigation efforts in line with National Disaster Management Authority Guidelines:

1. **Understanding Risk**
   - Observation Networks, Information Systems, Research, Forecasting, and Warning Systems: Establishing and strengthening dense networks for rainfall monitoring, especially in cloudburst-prone areas
   - Zoning / Mapping and Hazard Risk and Vulnerability Assessment (HRVA)- This will help in regulating development and infrastructure projects in high-risk zones
   - Monitoring and Dissemination of Warnings, Data, and Information
- **Inter-Agency Coordination-** NDMA, IMD, CWC, Geological Survey of India [GSI]), state (SDMA), and district (DDMA), Clear roles and responsibilities for monitoring, warning, response, and relief related to cloudburst events need to be defined and regularly rehearsed through mock drills, as suggested in the NDMP
  - Investing in DRR – Structural Measures - Flood Control Measures,Slope Stabilization and Engineering WorksSafe Infrastructure Development
  - Investing in DRR – Non-Structural Measures - Public Awareness and EducationCommunity-Based Disaster Risk ManagementMulti-Hazard Insurance
  - Capacity Development

2. CIVIL SERVICE DAY

Relevance: GS2/ Role of Civil Service

Backdrop: National Civil Services Day – April 21

National Civil Services Day – April 21

Observed on: April 21 every year

Purpose: To recognize the exceptional work of civil servants and their vital role in public administration and nation-building.

First observed: In **2006** by the Government of India.

Historical significance: Marks the day when **Sardar Vallabhbhai Patel**, India's first Home Minister, addressed IAS probationers at **Metcalfe House, Delhi**, in **1947**, calling civil servants the **"Steel Frame of India."**

British India Period

Pre-1853

- Recruitment was **patronage-based** — appointments made by the **East India Company**.

Post-1853

- **Open competitive exams** introduced (conducted in London).
- Formation of **Indian Civil Service (ICS)** in 1858 after the **Government of India Act, 1858**.

Indianisation of Civil Services

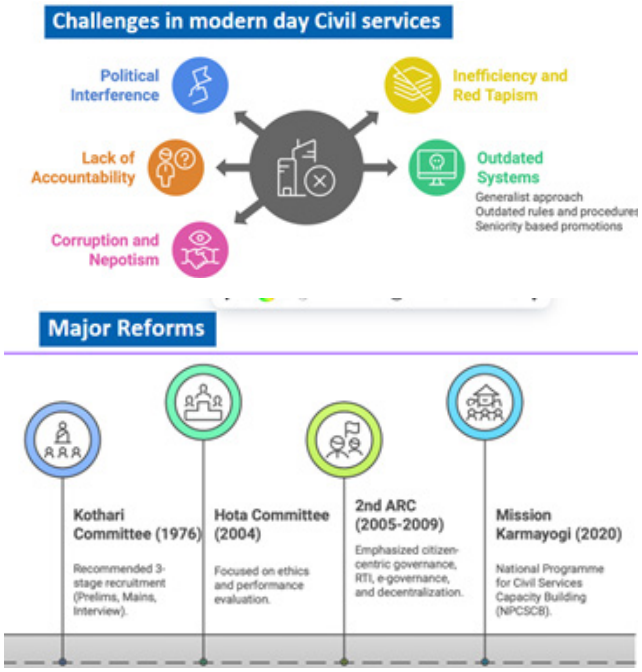
- **Aitchison Commission (1886)**: Recommended classification of services into **Imperial, Provincial, and Subordinate**.
- **Montagu-Chelmsford Reforms (1919)**: Gave Indians more participation in civil services.
- **Lee Commission (1924)**: Pushed for **50% Indianization** of superior posts.

Satyendra Nath Tagore was the first Indian to enter the Indian Civil Service. Post-Independence Period

- Constitutional Foundation
- **Article 312**: Provides for creation of **All India Services (AIS)** like IAS, IPS, IFoS.
- **UPSC** established under **Article 315** to ensure merit-based, impartial recruitment.

*Modern Civil Services Structure***:**

- **All India Services (AIS)** – IAS, IPS, IFoS
- **Central Services** – IRS, IFS, etc.
- **State Services** – Provincial services (PCS, etc.)



***Major Reforms*:**

- **Kothari Committee (1976)** – Recommended 3-stage recruitment (Prelims, Mains, Interview).
- **Hota Committee (2004)** – Focused on ethics and performance evaluation.
- **2nd ARC (2005–2009)** – Emphasized **citizen-centric governance**, **RTI**, **e-governance**, and **decentralization**.
- **Mission Karmayogi (2020)** – National Programme for Civil Services Capacity Building (NPCSCB).

3. HUMAN DETECTION RADARS, SEISMIC SENSORS TO TRACK TUNNELS: MHA'S HI-TECH SECURITY AT PAK BORDER

Backdrop: The government has been deploying an electronic surveillance system along its border with Pakistan to thwart infiltrations.

Relevance: GS 3/ Security Challenges and their Management in Border Areas.

About the news

Border Protection initiatives:

- **Electronic surveillance system:** It includes an integrated network of human-detection radars, thermal imaging, high-resolution cameras, comprehensive flood lighting along the fences, seismic sensors to detect tunnels, etc.
  - Deployed along the border with Pakistan to thwart infiltrations.
- **Comprehensive Integrated Border Management System (CIBMS):** It involves deployment of a range of state-of-the-art surveillance technologies such as thermal imagers, infra-red and laser-based intruder alarms, aerostats for aerial surveillance, unattended ground sensors that can help detect intrusion bids, radars, sonar systems to secure riverine borders, fibre-optic sensors, etc.
  - CIBMS is primarily implemented on the India-Pakistan and India-Bangladesh borders. It is also being considered for the India-Myanmar and other international borders.
- **BOLD-QIT** (Border Electronically Dominated QRT Interception Technique): Implemented under CIBMS on the India-Bangladesh border (Dhubri district of Assam), along the riverine border, as it was not feasible to construct border fencing.

Key Technologies:

- **Micro-doppler radars:** Used because of their advantages over cameras and other types of sensors, including their penetration capabilities, which help in obscured environments like walls, smoke, fog, and so on.
  - While Cameras fail in foggy environments and the rain, radars can be used in all weather conditions.
- **Seismic sensors:** Used to detect tunnels by sending seismic waves underground to detect if there are gaps or holes inside the earth. A software interprets the signals. Then security forces dig the place to see if there are any tunnels.
- **Aerostats:** Also known as captive balloons or tethered aerostats, they are a type of lighter-than-air aircraft used for aerial surveillance and various other purposes.
  - India has developed indigenous aerostats like the Akashdeep and Nakshatra for surveillance and communication, particularly along the border with Pakistan.

- **Anti-Drone Systems:**
  - **DRDO's Soft Kill and Hard Kill Systems:** These represent a two-pronged approach, with soft kill jamming drone communication links and hard kill using lasers to destroy them.
  - **Laser-equipped anti-drone gun-mounted mechanism:** Deployment along the India-Pakistan border has shown promising results in neutralizing drone threats.
  - **Counter Drone System (D4 System):** This system provides real-time detection, tracking, and neutralization capabilities, crucial for protecting critical infrastructure and public events.
  - **Anti-Drone Unit:** A comprehensive Anti-Drone Unit is proposed to be created soon to secure India's borders.

Facts about India's Border

- **Total length:** India has **15,106.7 km** of land border and a coastline of **11,098km**, including island territories.

Major Boundaries:

India Pakistan:

At its northern end is the Line of Control, which separates Kashmir from PoK, and at its southern end is Sir Creek, a tidal estuary in the Rann of Kutch between Gujarat and Sindh.

India-China border :

LAC is generally divided into three sectors:

Western sector: Between Ladakh on the Indian side and Tibet and Xinjiang autonomous regions on the Chinese side.

Middle sector: Between Uttarakhand and Himachal Pradesh on the Indian side and the Tibet autonomous region on the Chinese side.

Eastern sector: Between Arunachal Pradesh/ Zangnan on the Indian side and the Tibet autonomous region on the Chinese side. This sector generally follows the McMahon Line.

Name of the country	Length of the border (in Km)
Bangladesh	4,096.7
China	3,488
Pakistan	3,323
Nepal	1,751
Myanmar	1,643
Bhutan	699
Afghanistan	106
Total	**15,106.7**

Security Forces in Border Areas:

Border	Deployed Forces
India-Nepal Border	Sashastra Seema Bal (SSB)
India-Pakistan Border	Border Security Force (BSF)
India-China Border	Indo-Tibetan Border Police (ITBP)
India-Bangladesh Border	Border Security Force (BSF)
India-Bhutan Border	Sashastra Seema Bal (SSB)
India-Myanmar Border	Assam Rifles
India-Sri Lanka Maritime Boundary	Indian Coast Guard (ICG)

4. JAMES WEBB TELESCOPE

Backdrop: A recent paper suggested an abundance of dimethyl sulphide – an indication of the possibility of life – on a planet, K2-18b.

Relevance: GS 3/ Science and Technology

About the news:

Dimethyl sulphide (DMS): Dimethyl sulfide (DMS) or methylthiomethane is an organosulfur compound. It is a flammable liquid that boils at 37 °C.

- Key contributor to the aroma of certain cooked vegetables, seafood, and fruits, etc.
- It is also an indication of bacterial contamination in malt production and brewing.
- **Indicator of life:** DMS is produced by blooms of algae floating close to the sea surface and is regarded by scientists as a biosignature.

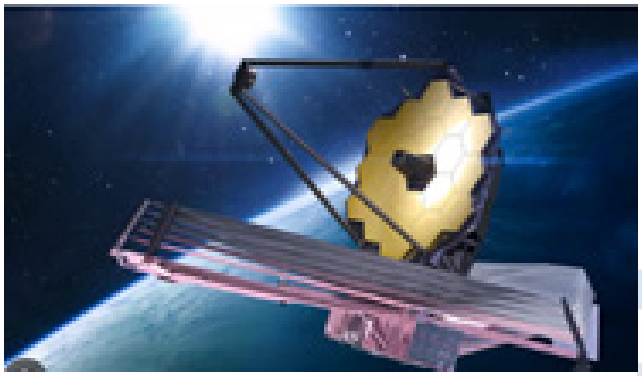
Planet, K2-18b:

- Discovered in 2015 by NASA's Kepler mission.
- It orbits a star 124 light years from Earth.
- It is amongst the planets outside the solar system that are far bigger than Earth but smaller than Neptune.
- These sub-Neptunes are located around the "**Goldilocks Zone**" of a star, an area not too hot

and not too cold to contain water, and, therefore, holding the promise of life.

James Webb Telescope:

- JWST is the largest and most powerful space telescope ever built, designed by NASA in collaboration with European Space Agency (ESA) and Canadian Space Agency (CSA).
- Specifically designed to observe infrared light, which allows it to see through dust clouds and into the distant universe.
- Primary goal is to explore the universe from its earliest stages, including the formation of the first galaxies, stars, and planets, as well as the evolution of our own solar system.



Comparision

Aspect	Hubble Space Telescope	James Webb Space Telescope
1. Wavelengths Observed	Visible, Ultraviolet, and Near-Infrared Light	Near-Infrared and Mid-Infrared Light
2. Location	Low Earth Orbit (~575 km above Earth)	Lagrange Point 2 (L2), ~1.5 million km from Earth, orbiting the Sun
3. Capabilities	Detailed imaging in visible and UV light; studies galaxies and celestial objects	Infrared imaging through dust clouds; detects faint, distant objects in early universe; studies star and planet formation
4. Scientific Focus	Focus on shorter wavelengths (Visible & UV)	Focus on longer wavelengths (Infrared); studies early universe, exoplanets, and star birth

NASA's Kepler mission: It was a space telescope dedicated to discovering exoplanets, particularly Earth-like planets in the habitable zones of other stars.

- The mission, including its extended K2 phase, operated up to October 30, 2018, when fuel was exhausted.

DECODED

5. FEDERALISM

Relevance: GS 2/Issues Related to Federalism

Backdrop: Recent SC Judgement on Governor and other issues pertaining

UPSC PYQ

Q. How far do you think cooperation, competition and confrontation have shaped the nature of federation in India? Cite some recent examples to validate your answer (Answer in 150 words)

What is Federalism?

Federalism is a system of governance in which power is constitutionally divided between two or more levels of government—usually a national government and regional governments (states or provinces). Both levels exercise authority over the same citizens, but in different spheres of policy and governance.

Key Features of Federalism:

- **Division of Powers:** Clear constitutional distribution of legislative, administrative, and financial powers.
- **Written Constitution:** A formal, codified document that serves as the supreme law.
- **Supremacy of the Constitution:** All laws and actions must conform to the constitution.
- **Independent Judiciary:** A neutral body (like the Supreme Court) interprets the constitution and resolves intergovernmental disputes.
- **Bicameral Legislature (in many cases):** One house represents the people, the other represents the states or provinces (e.g., Rajya Sabha in India, Senate in the USA).

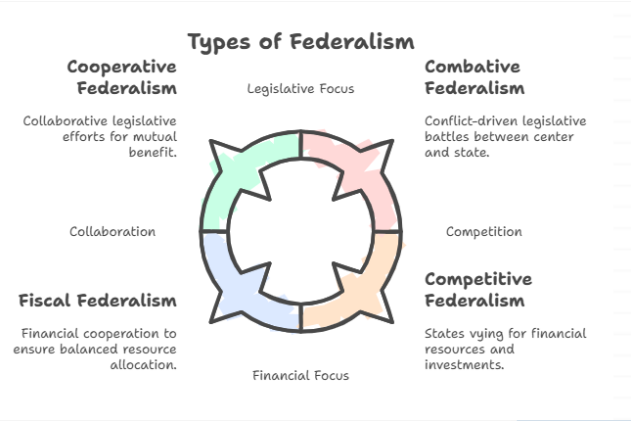
Indian federalism

- 'Holding together' Federalism: India's centralised federal structure was not marked by the process of 'coming together' but was an outcome of 'holding together' and 'putting together'.
- Federalism was a part of the basic structure of the Indian Constitution in the S.R. Bommai vs Union of India case (1994).

- The Indian variant of federalism upholds a strong centre in the Kuldip Nayar vs Union of India case (2006).
- Indestructible & Flexibility: B. R. Ambedkar called India's federation a Union as it was indestructible which is why the Constitution does not contain words related to federalism.

Types of Federalism:

- **Cooperative Federalism** – Collaboration between levels of government.
- **Competitive Federalism** – States compete for funds, investments, etc.
- **Fiscal Federalism** – Concerns the financial relations between central and state governments.
- **Combative Federalism:** Conflict between centre and state **Ajit Mohan V. legislative assembly, NCT of Delhi and others (2021),**



Federalism In India

Legislative Relations:

Aspect	Article	Description
Territorial Jurisdiction	Article 245	Parliament can make laws for the whole or any part of India; States for their respective territories. Parliament can also make laws with **extra-territorial effect**.
Subject-Matter of Laws	Article 246	Division of powers into three lists (Union, State, Concurrent) under the **Seventh Schedule**. Union law prevails over State law in case of conflict on Concurrent subjects.
Residuary Powers	Article 248	Parliament has exclusive power to legislate on matters not enumerated in any of the three lists.
Power of Parliament on State Matters – in National Interest	Article 249	Rajya Sabha may authorize Parliament (by 2/3 majority) to legislate on State List subjects in national interest.
Parliament's Power During Emergency	Article 250	Parliament can legislate on State List subjects during a **national emergency**.
Parliament's Power When Two or More States Consent	Article 252	When two or more states pass a resolution, Parliament can make laws for them on State List subjects. Other states can adopt the law later.
Inconsistency Between Union and State Laws	Article 254	In case of conflict on Concurrent List subjects, Union law prevails. If the State law has the President's **assent**, it prevails in that State.
Schedule Involved	Seventh Schedule	Contains the **Union List (List I), State List (List II), Concurrent List (List III)**.

Administrative Relations (Arts. 256 to263):

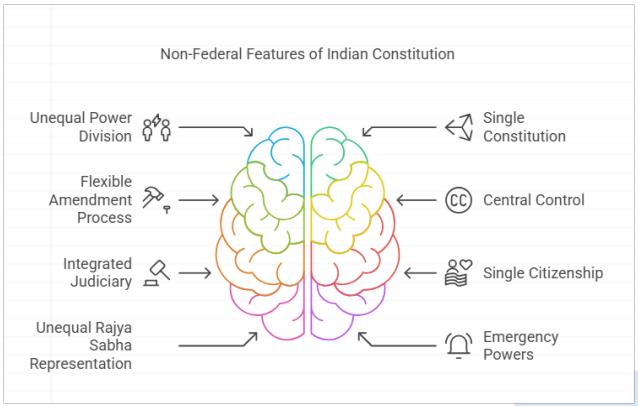
- Directives by the Union to the State governments: Article 256
- Delegation of Union functions to the States: Article 258
- All India Services
- Constitution of Joint Public Service Commission for two or more States
- Inter-State Council: Article 263
- Inter- State River water dispute: Art.262

Financial Relations (Art.268 to Art.293):

- Taxes and duties **levied by the Union**, but collected and appropriated by the States (Art. 268)
- Service tax levied by the Centre, but collected and appropriated by the **Centre and the States** (Article 268A)

- Levy and Collection of **GST:** Article 269A
- Taxes levied and collected by the Union and **distributed between** the Union and the States (Art.270)
- Surcharge on certain taxes (Art.271)
- Grants-in-Aid: (Art.275)
- Previous sanction of the President (Art 274)
- Freedom of **Inter-State Trade**
- Distribution of non-tax-revenues

Non-Federal Features:



Challenges to Federalism

Centralization of Power

- Excessive use of central mechanisms (e.g. Article 356 in India).
- Overreach by national agencies into state domains.(For eg ED,CBI etc)

Financial Imbalance

- The Centre controls major sources of revenue, while states bear expenditure responsibilities.
- Dependence on central transfers and grants (e.g., via Finance Commission).

Lack of Autonomy

- States often have limited say in policymaking even in areas under their jurisdiction.

Political Mistrust and Partisanship

- Friction when different parties rule at Centre and State.
- Allegations of bias in fund allocation or use of investigating agencies.

Poor Functioning of Intergovernmental Institutions

- Inter-State Council and Zonal Councils meet infrequently or lack enforcement powers.

Regional Disparities

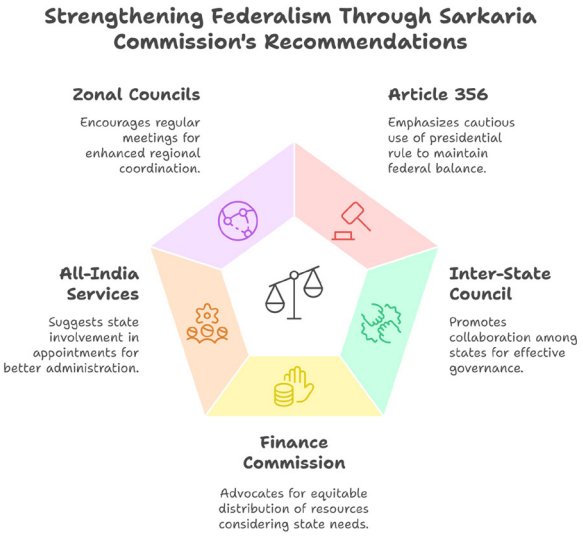
- Unequal development creates tension and competition among states.

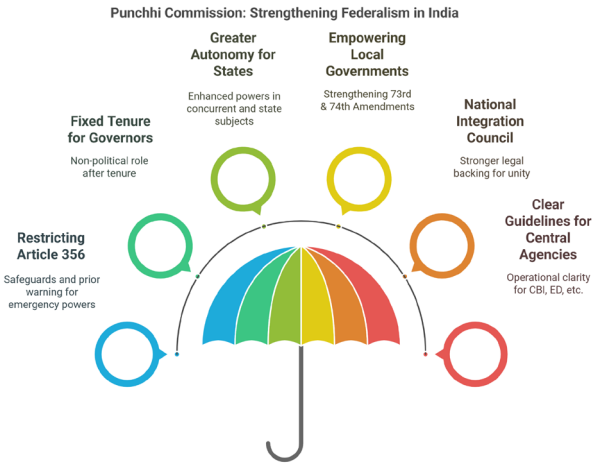
Language and Cultural Diversity

- While a strength, it can also lead to identity-based movements (e.g., demands for statehood, autonomy).

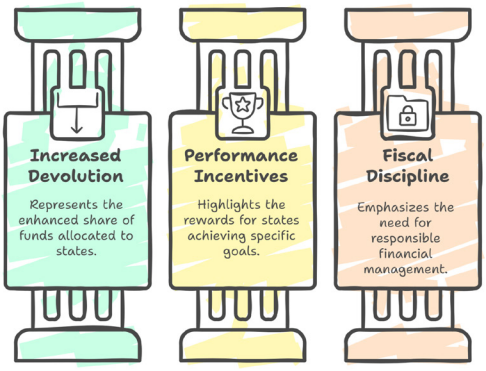
Issues in Cooperative Federalism

- GST implementation and disputes over revenue sharing.
- Delayed compensation to states, uneven decision-making in GST Council.

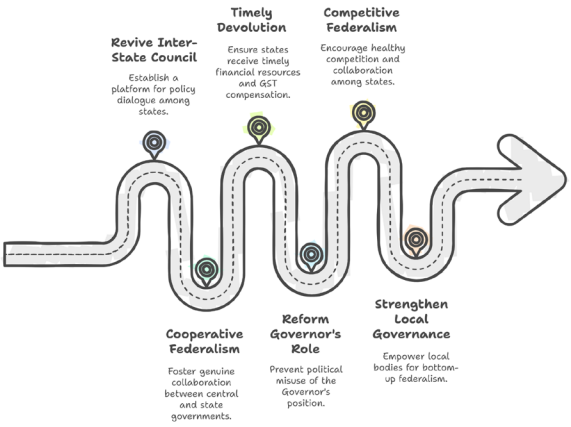




15th Finance Commission (2020—25)



Strengthening Indian Federalism



PRACTICE QUESTION

Q. From the resolution of contentious issues regarding distribution of legislative powers by the courts, 'Principle of Federal Supremacy' and 'Harmonious Construction' have emerged. Explain.(10)

DNA QUIZ

1. Which of the following statements with regard to cloudburst is/are correct?

1. It is defined as sudden localized very heavy downpour with cloud thunder and lightning.
2. It mostly occurs in the hilly areas.
3. It results into very high intensity of rainfall, i.e., 250 mm-300 mm in a couple of hours.
4. It occurs only during daytime.

Select the correct answer using the code given below.

(a) 1, 2 and 3
(b) 1, 3 and 4
(c) 2 and 3 only
(d) 2 only

2. In the context of India, which one of the following is the characteristic appropriate for bureaucracy?

(a) An agency for widening the scope of parliamentary democracy
(b) An agency for strengthening the structure of federalism
(c) An agency for facilitating political stability and economic growth
(d) An agency for the implementation of public policy

3. Consider the following statements regarding India's international borders:

1. India shares the longest land border with China.
2. The India-Bangladesh border is the longest international boundary that India shares with any country.
3. India shares both land and maritime borders with Myanmar.
4. The McMahon Line separates India and Nepal.

Which of the statements given above is/are correct?

(a) Only One
(b) Only Two
(c) Only Three
(d) None

4. The term 'Goldilocks Zone' is often seen news in the context of [2015]

(a) the limits of habitable zone above the surface of the Earth
(b) regions inside the Earth where shale gas is available
(c) search for the Earth-like planets in outer space
(d) search for meteorites containing precious metals

Answer			
1 (a)	2 (d)	3 (d)	4 (a)

■■■■