

P2. NATIONAL



Ladakh to lead Independent India's first caste census - Census 2027 combines digital population enumeration with open-ended caste recording, while paper-based procedures provide a security-sensitive exception for Ladakh

P3. NATIONAL



Maternal Deaths and Patient Safety in Rajasthan - Maternal deaths in Rajasthan highlight how patient safety, infection control, medicine quality and emergency preparedness determine the quality of institutional maternal healthcare.

P4. ENERGY



Industrial Heat Electrification in India: The Next Phase of Energy Transition - Industrial heat electrification can decarbonise manufacturing, particularly MSMEs, but requires technology-specific engineering, renewable electricity, innovative finance, skilled manpower and cluster-based planning

P7. ECOLOGY



2024 Wayanad landslide: Study reveals the interplay of climate and geology - The Wayanad landslide shows that extreme rainfall triggers slope failure, but geology, weathering, fractures and valley morphology determine where it begins and how destructively it propagates.

Editor's Note

As another week rolls in, we bring you more nuanced and detailed lessons on national developments, ecological events, infrastructural developments and governance challenges. To begin, India's first-ever digital Census, with a focus on caste enumeration, becomes a topic of discussion as the first phase is being conducted in Ladakh. Next, pressing issues across various States are examined, including public employment quota concerns in Arunachal Pradesh and persistent maternal deaths in Rajasthan. Moving to the energy sector, the scope and benefits of industrial heat electrification are discussed in detail. In the Decoded Editorials section, we turn our focus to the implications of the latest Makkah Agreement between Pakistan, Saudi Arabia and Türkiye. We also analyse how changing rainfall patterns have impacted India's present kharif season. In the Ecology section, we examine the devastating 2024 Wayanad landslides in light of recently uncovered evidence on the environmental factors involved. Altogether, these articles help us understand significant topics with due depth and context. We therefore encourage readers to make a focused effort to read through them, solve the practice MCQs, assess previous questions from related topics, and develop a clear understanding of the issues themselves. Happy reading!

Editorials Decoded



Monsoon has revived, but keep an eye on weather



A severely deficient June was followed by a July monsoon revival that rescued kharif sowing and reduced crop stress, but strengthening El Niño keeps late-monsoon and rabi risks alive



Shifting sands



The MJDA is a trilateral Saudi-Türkiye-Pakistan collective-defence arrangement whose significance lies in regional security diversification, but whose actual deterrent credibility remains uncertain.

Ladakh to lead Independent India's first caste census

The Population Enumeration (PE) phase of Census 2027 involves collecting demographic information through a predominantly digital process. Ladakh and other snow-bound areas will undergo enumeration earlier than most of the country, with paper schedules retained for sensitive defence locations where structures cannot be geo-located for security reasons.

Population Enumeration and Caste Enumeration Framework

Digital Census: Census 2027 is designed as India's first digital Census.

Caste Enumeration: The caste field is proposed as *an open-ended column*, with caste recorded according to the respondent's declaration.

Coverage: The PE is expected to contain around 40 descriptive questions covering caste and demographic information.

Self-Enumeration: Residents can self-enumerate through the Census portal, with geo-location requirements applying to this process as well.

Paper Exception: Paper schedules will be used in Ladakh and other sensitive areas where defence structures cannot be geo-tagged.

Early Enumeration: Ladakh and snow-bound areas of Jammu and Kashmir, Himachal Pradesh and Uttarakhand will undergo PE ahead of the rest of India.

Timeline: Enumeration is notified for September 1–30, 2026, with a revisional round from October 1–5; self-enumeration is available from August 17–31.

Governance concerns

Caste Classification: An open-ended field may generate substantial variation in caste names and descriptions. (The 2011 SECC produced over 46 lakh different caste names.)

Security Exception: Geo-location requirements create difficulties around defence establishments, particularly structures near the Line of Actual Control.

Administrative Preparedness: Training enumerators in caste recording, interviewing and digital tools is essential for consistent implementation.

RELEVANCE

GS II : Governance and Data Collection

Arunachal group wants government policy to recruit 20% non-residents scrapped

Arunachal Pradesh has a long-standing 80:20 recruitment policy, under which 20% of government jobs are open to non-residents. Tribal groups are now demanding its abolition, along with making Scheduled Tribe (ST) status and Permanent Resident Certificate (PRC) mandatory for recruitment through State recruitment bodies.

Constitutional Framework – Article 16

Equal Opportunity: Article 16 ensures equality of opportunity in public employment and prohibits discrimination on specified grounds.

Permitted Preferences: It enables reservations for backward classes and EWS, with creamy-layer exclusion.

Residence: Article 16(3) permits residence-based conditions for public employment through parliamentary legislation.

Reservation Principles: The 50% ceiling emerged from Indra Sawhney (1992), while the *Triple Test* considers *backwardness, inadequate representation and administrative efficiency*.

Promotions: The 77th Amendment enabled SC/ST reservation in promotions; Jarnail Singh (2018) applied creamy-layer exclusion to SC/ST promotions, balancing equity with administrative efficiency.

The demand to scrap the 20% non-resident component reflects concerns over employment opportunities for local youth. However, restructuring recruitment must balance local aspirations with the constitutional guarantee of equality in public employment.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. Consider the following statements : (2023)
 Statement-I: The Supreme Court of India has held in some judgments that the reservation policies made under Article 16(4) of the Constitution of India would be limited by Article 335 for maintenance of efficiency of administration.

Statement-II: Article 335 of the Constitution of India defines the term 'efficiency of administration'.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement I
 (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
 (c) Statement-I is correct but Statement-II is incorrect
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Maternal Deaths and Patient Safety in Rajasthan

A series of maternal deaths across government hospitals in Rajasthan has raised concerns over the quality and safety of institutional maternal healthcare. Recent cases have occurred following both normal and Caesarean deliveries, with suspected causes ranging from rare obstetric emergencies to possible medicine-related complications and infection-control failures.

Emerging Pattern and Immediate Concerns

Geographical Spread: Maternal deaths have been reported in Bhilwara, Banswara, Kota, Bikaner and Jodhpur.

Post-Caesarean Deaths: Several recent deaths occurred following Caesarean deliveries, increasing concerns over peri-operative safety.

Infection Control: Bacterial contamination detected in an operation theatre raised concerns regarding sterilisation and surgical safety.

Medicine Safety: Investigations into Kota deaths identified spurious oxytocin injections containing water instead of the active medicine.

Emergency Risks: A maternal death in Bundi was suspected to involve **amniotic fluid embolism**, demonstrating the need for rapid emergency response.

What needs to be done?

Patient Safety: Maternal healthcare requires reliable infection prevention, sterilisation, and emergency-care systems.

Accountability: Maternal death audits can distinguish unavoidable medical emergencies from potentially preventable system failures.

Capacity Strengthening: Surgical infrastructure, trained personnel, equipment and emergency obstetric capabilities need to match patient volumes.

Continuous Monitoring: Hospitals require regular quality-control mechanisms rather than relying only on investigations after deaths occur.

Centre says report on theatre commands under consideration

Theatrisation refers to restructuring the armed forces into integrated operational commands in which the capabilities of the Army, Navy and Air Force are brought together under unified command structures for specific operational theatres. India's proposed theatre command system has now reached an advanced stage, with the final restructuring report under government consideration. The reform seeks to improve jointness, operational coordination and integrated war-fighting among the three Services.

Proposed Theatre Command Framework

Integrated Structure: Capabilities of the Army, Navy and Air Force will be brought together under unified operational commands.

HQ IDS: The Headquarters Integrated Defence Staff will coordinate operational issues involving theatres and Service headquarters.

Joint Operations Staff: A Joint Operations Staff is envisaged to manage coordination between theatres and individual Services.

Dedicated Team: Officers from all three Services are studying global military organisations and consulting on the proposed restructuring.

Transition: Existing Service headquarters will continue coordinating with theatre structures during and after the transition.

Current Status

Final Report: The final report on operationalising theatre commands is currently under government consideration.

Government Deliberation: Further discussions are ongoing before finalisation of the restructuring.

Parliamentary Review: Operationalisation of theatre commands remains the recommendation among 34 examined by the Standing Committee on Defence for which a final government response is awaited.

Theatre commands represent an important step towards greater integration and jointness in India's armed forces. The ongoing finalisation of the restructuring framework indicates that the reform has moved beyond conceptual discussion towards institutional implementation.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. In order to enhance the prospects of social development, sound and adequate health care policies are needed particularly in the fields of geriatric and maternal health care. Discuss. (GS II - 2020)

RELEVANCE

GS II : Healthcare; GS III : Internal Security

ENERGY

Industrial Heat Electrification in India: The Next Phase of Energy Transition

India's energy transition is increasingly extending electricity into transport, agriculture and buildings. The next major opportunity is industrial heat electrification, particularly in MSMEs that depend heavily on thermal processes. **Industrial heat electrification is the process of replacing fossil fuels (coal, oil, and natural gas) used for manufacturing heat with electricity-powered technologies** Unlike simple equipment replacement, this transition requires understanding industrial heat demand, identifying opportunities for heat recovery and selecting technologies according to process requirements.

Industrial Heat Electrification: Core Approach

Engineering Assessment: Map boilers, steam flows, temperatures, waste heat and operating costs before investment.

Process Integration: Use tools such as pinch analysis to maximise internal heat recovery before electrification.

Technology Choice: Heat pumps suit low/medium temperatures; electric boilers can serve steam generation above 200°C.

Thermal Storage: Stores surplus renewable or recovered heat and releases it when required, reducing peak electricity demand.

Cluster Planning: Aggregate facility assessments to develop industrial decarbonisation plans suited to local thermal profiles and infrastructure.



Enabling Ecosystem for Scale

Affordable Electricity: Reduce network, open-access and transaction costs and strengthen the grid so industries can access reliable renewable electricity.

Easier Financing: Use leasing, heat-as-a-service, ESCO models and blended finance to reduce the high upfront cost of electrification.

Collective Procurement: Aggregate demand across industrial clusters to reduce technology costs and improve access to finance.

Skilled Workforce: Train engineers, technicians and operators in system design, process integration, digital controls and maintenance.

Demonstration Projects: Begin with suitable pilot projects to test technologies, develop viable business models and reduce investment risks.

Significance

MSME Competitiveness: Efficient electrified heat can strengthen manufacturing competitiveness while reducing dependence on fossil-fuel-based heating.

Decarbonisation: Renewable-powered industrial heat can reduce greenhouse-gas emissions from manufacturing.

No Blanket Solution: Technologies must be selected according to temperature, thermal demand, production schedules and local conditions.

Common Blueprint: A national framework should establish standards, institutional responsibility, financing and demonstration support.

Place-Based Transition: District and industrial-cluster plans should align thermal demand with renewable potential and electricity infrastructure.

Way Forward

Industrial heat electrification represents a shift from simply replacing fossil-fuel equipment to redesigning industrial energy systems. Its success will depend on engineering assessments, technology diversity, affordable renewable electricity, innovative financing, skilled workers and demonstration projects. A coordinated national framework combined with cluster-level implementation can make electrification scalable while allowing industries to respond to their specific thermal and infrastructure needs. This approach can turn industrial decarbonisation into a broader strategy for a more competitive, resilient and future-ready manufacturing sector.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. Write a review on India's climate commitments under the Paris Agreement (2015) and mention how these have been further strengthened in COP26 (2021). In this direction, how has the first Nationally Determined Contribution intended by India been updated in 2022? (GS III – 2025)

RELEVANCE

GS III : Infrastructure - Energy

Shifting Sands (The Hindu : 10-08-2026)

The Makkah Joint Defence Agreement (MJDA) was signed on August 7, 2026 by Saudi Arabia, Türkiye and Pakistan amid continuing security turbulence in West Asia. Its central provision states that an armed attack against any one of the three countries will be regarded as an attack against all three, establishing a collective-security commitment.

Key Features and Strategic Context

Collective Defence: An armed attack against one member is to be treated as an attack against all three, creating a collective-deterrence framework.

Trilateral Composition: Saudi Arabia contributes financial and strategic weight; Türkiye brings a growing defence-industrial base; Pakistan provides substantial military capabilities.

Regional Turbulence: The pact comes amid heightened tensions involving Iran, Israel and wider West Asian security disruptions.

Not “Muslim NATO”: Saudi and Turkish officials have indicated that the agreement is not intended to create a military axis or sectarian bloc, *and Türkiye has said it is not directed against Iran.*

Limited Disclosure: The precise threats, operational commitments and mechanisms for collective response remain unclear.

Implications for Regional Security

Security Diversification: Saudi Arabia appears to be exploring additional security partnerships rather than relying exclusively on the traditional U.S.-centred framework.

Defence Cooperation: These countries could expand military exercises, interoperability and defence-industry cooperation.

Deterrence Gap: Collective-defence language backed by clear commitments and operational capabilities ensure constructive deterrence.

Strategic Contradictions: Türkiye and Pakistan have their own security and economic interests involving Iran, potentially limiting their willingness to confront Tehran directly.

Future Uncertainty: Prolonged regional conflict could strengthen the pact's relevance, while peace could reduce its immediate strategic necessity.

Implications for India

Pakistan Factor: The agreement could provide Islamabad greater diplomatic and strategic space in West Asia, requiring India to monitor any attempt to use the grouping against Indian interests.

Saudi Relationship: India-Saudi economic and strategic ties provide Riyadh with strong incentives to maintain a stable relationship with India.

Energy Security: Saudi Arabia's importance to India's crude-oil interests makes stability in the Gulf particularly significant for India.

No Automatic Alignment: The trilateral pact does not necessarily imply that Saudi Arabia will support Pakistan on India-related issues.

Strategic Response: India should avoid overreaction while closely monitoring the agreement's evolution and maintaining strong bilateral engagement with Saudi Arabia and other Gulf partners.



Way Forward

The MJDA represents an emerging experiment in regional collective security rather than an established military bloc. Its significance will depend on whether political commitment develops into credible deterrence, operational interoperability and sustained defence cooperation. For India, the agreement warrants close strategic monitoring, particularly because of Pakistan's participation and the importance of Saudi Arabia to India's energy and economic interests. Maintaining strong bilateral ties with Riyadh while avoiding unnecessary bloc politics would remain important.

PYQ Compass

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Q. Energy security constitutes the dominant kingpin of India's foreign policy, and is linked with India's overarching influence in Middle Eastern countries." How would you integrate energy security with India's foreign policy trajectories in the coming years? (GS II – 2025)

RELEVANCE

GS II : International Relations



Monsoon has revived, but keep an eye on weather (I.E : 10-08-2026)

The 2026 southwest monsoon has shown a significant recovery after a severely deficient June. Cumulative rainfall deficiency fell from 38% in June to 11.5%, supported by unusually frequent and prolonged low-pressure systems in July. This revival has reduced kharif sowing delays and relieved moisture stress in already-sown crops. However, the strengthening El Niño remains a major risk, with below-normal rainfall forecast for the latter part of the monsoon and possible consequences for the subsequent rabi crop.

Monsoon Performance & Rainfall Dynamics

June Deficit: Rainfall was 38% below normal, with no rain-bearing low-pressure system against a normal three.

July Revival: Four low-pressure systems formed, producing 24 LPS-active days against a normal 14.

Rainfall Recovery: July recorded a 2.4% all-India surplus, despite stronger El Niño conditions.

Cumulative Position: Overall rainfall deficiency narrowed to 11.5%, from 22.8% till July 15.

Monsoon-ENSO Disconnect: July rainfall performance shows that El Niño does not always translate immediately into deficient Indian rainfall.

Impact on Kharif Agriculture

Sowing Recovery: The progressive kharif sowing gap (overall gap in progressive area sown under kharif crops) narrowed from 20.8% to 2.9% by July-end.

Late Planting: Improved rainfall supported delayed sowing of pulses, soybean, sesamum and cotton.

Moisture Stress: Rainfall revived crops that had already been sown but were experiencing moisture stress after the prolonged monsoon break.

Fertiliser Supply: Urea production and imports during April-June 2026 were higher than during the corresponding period of 2025.

Near-Term Need: Standing kharif crops require further good rainfall spells during late August and early September.

Emerging Risks and Policy Priorities

El Niño Risk: Strengthening El Niño could produce below-normal rainfall during the latter part of the monsoon.

Rabi Exposure: Persistent El Niño conditions may affect the subsequent rabi crop, with impacts potentially emerging after a time lag.

Weather Uncertainty: A favourable July does not eliminate risks created by a potentially weak late monsoon.

Supply Management: The government needs proactive management of agricultural supplies to respond to weather-linked production risks.

CROPPING SEASONS IN INDIA

Cropping Season	Major Crops Cultivated	
	Northern States	Southern States
Kharif June-September	Rice, Cotton, Bajra, Maize, Jowar, Tur	Rice, Maize, Ragi, Jowar, Groundnut
Rabi October - March	Wheat, Gram, Rapeseeds and Mustard, Barley	Rice, Maize, Ragi, Groundnut, Jowar
Zaid April-June	Vegetables, Fruits, Fodder	Rice, Vegetables, Fodder



Way forward

The 2026 monsoon illustrates why seasonal rainfall assessment must account for intra-seasonal variability rather than relying only on early-season performance or a single climate indicator. July's low-pressure activity substantially improved rainfall and kharif prospects, but the strengthening El Niño and forecast of a weaker late monsoon remain important risks. Continued weather monitoring, timely agricultural support and proactive supply-side management will therefore remain essential.

PYQ Compass

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Q. Consider the following crops (2013)

1. Cotton 2. Groundnut 3. Rice 4. Wheat

Which of these are Kharif crops?

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

RELEVANCE

GS I : Indian Monsoon; GS III : Agriculture

ECOLOGY

2024 Wayanad landslide: Study reveals the interplay of climate and geology

The 2024 Wayanad landslide illustrates that catastrophic landslides can result from the interaction of extreme rainfall with underlying geological and geomorphological conditions. Nearly 573 mm of rainfall in 48 hours triggered a massive slope failure in the upper catchment of the Punnapuzha river on July 30, 2024. The failure rapidly transformed into a high-speed debris flow that travelled nearly 8 km, descending about 768 metres and causing widespread destruction. The event therefore demonstrates that rainfall may trigger a landslide, while geological conditions can determine its location, movement and severity.

Geological and Geomorphological Setting

Ancient Rocks: The affected hills consist of ancient crystalline rocks repeatedly deformed over geological time.

Weakness Zones: Deformation produced shear zones, fractures and foliations that created natural planes of weakness.

Deep Weathering: Water entering fractures caused chemical weathering, transforming hard rock into deeply weathered, softer material.

Failure Zone: The landslide originated near the crown within a highly weathered shear zone crossed by a first-order stream.

Investigations: Field mapping, rock analysis, drone-mounted *LiDAR (Light Detection and Ranging)* and high-resolution imagery were used to examine the affected valley and unsafe upper failure zone.

Triggering Mechanism and Landslide Evolution

Extreme Rainfall: Intense rainfall rapidly infiltrated interconnected fractures and increased water pressure within the slope.

Slope Failure: Rising water pressure reduced slope stability until the strength of the rock mass was exceeded.

Debris Flow: A large block detached and rapidly transformed into a debris flow carrying rock, soil and vegetation.

Natural Barriers: Narrow valley sections underlain by stronger metagabbro and granite temporarily accumulated debris.

Surge Intensification: Collapse of these temporary natural dams released powerful surges of water, mud and boulders downstream.

Significance and Key Lessons

Multi-Causal Hazard: Extreme rainfall was the immediate trigger, but geological weaknesses controlled the initiation and movement of the failure.

Weathering Matters: Long-term chemical weathering can convert fractured crystalline rock into weaker subsurface material.

Valley Geometry: Natural constrictions can temporarily store debris before sudden release, increasing downstream destructive power.

Hazard Assessment: Landslide-risk assessment should consider rainfall alongside geological structures, weathering and terrain characteristics.

Scientific Monitoring: Field investigations and technologies such as LiDAR and aerial imagery can improve understanding of inaccessible or unstable landslide zones.



Way Forward

The Wayanad disaster demonstrates that landslide intensity cannot be explained by rainfall alone. Rainfall supplied the immediate trigger, while geological weaknesses, deep weathering and valley characteristics shaped the failure and amplified its destructive movement. Understanding this interaction is important for improving landslide-risk assessment and disaster preparedness in vulnerable mountainous terrain. A comprehensive approach must therefore examine both short-term triggering conditions and the longer-term geological processes that create slope instability.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. Describe the various causes and the effects of landslides. Mention the important components of the National Landslide Risk Management Strategy. (GS III – 2023)

RELEVANCE

GS I : Geomorphological processes;

GS III : Disaster Management

PYQ Compass

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Q. Consider the following statements : (2023)

Statement-I: The Supreme Court of India has held in some judgments that the reservation policies made under Article 16(4) of the Constitution of India would be limited by Article 335 for maintenance of efficiency of administration.

Statement-II: Article 335 of the Constitution of India defines the term 'efficiency of administration'. Which one of the following is correct in respect of the above statements?

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- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Ans : c

Statement-I: This is correct. The Supreme Court has held in several judgments (e.g., Indra Sawhney case, M. Nagaraj case) that reservation policies under Article 16(4) (which provides for reservation in public employment) must not compromise the "efficiency of administration" as mandated by Article 335. Article 335 states that claims of Scheduled Castes and Scheduled Tribes must be balanced with maintaining administrative efficiency.

Statement-II: This is incorrect. Article 335 mentions "efficiency of administration" but does not define the term. The interpretation of what constitutes "efficiency of administration" is left to judicial interpretation and administrative practice. Thus, Statement-I is correct, and Statement-II is incorrect, making the correct answer (c) Statement I is correct but Statement-II is incorrect.

Q. . Consider the following crops (2013)

1. Cotton 2. Groundnut 3. Rice 4. Wheat

Which of these are Kharif crops?

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

Ans : C

Kharif crops are grown during the monsoon season, typically from June to September in India. These crops require high rainfall and warm temperatures. Let's analyze each crop:

- 1) Cotton: Kharif crop. Cotton is sown in the monsoon season and grows well in hot and humid conditions.
- 2) Groundnut: Kharif crop. Groundnut (peanut) is typically sown at the beginning of the monsoon and harvested at the end of the rainy season.
- 3) Rice: Kharif crop. Rice is one of the primary Kharif crops and is grown in the monsoon season with the requirement of abundant water.
- 4) Wheat: Rabi crop. Wheat is sown in the winter season (usually October–November) and harvested in the spring (around March–April), making it a Rabi crop, not a Kharif crop.

PRACTICE QUESTIONS

Q. Which of the following best explains the importance of cluster-level planning for industrial heat electrification?

- (a) It ensures that every industrial unit adopts the same electrification technology.
- (b) It enables industries with similar thermal requirements to aggregate demand and align energy infrastructure with local conditions.
- (c) It eliminates the need for facility-level engineering assessments.
- (d) It allows industrial clusters to operate independently of renewable electricity availability.

Answer: (b)
Aggregating similar thermal profiles can reduce procurement costs, improve financing access and support coordinated infrastructure and renewable-energy planning.

Q. The strategic significance of the Makkah Joint Defence Agreement is best understood as:

- (a) The immediate replacement of the U.S. security presence in West Asia by a new trilateral military command.
- (b) The creation of an exclusively economic partnership among three major Muslim countries.
- (c) An attempt to strengthen regional collective deterrence and diversify security partnerships amid continuing West Asian instability.
- (d) A formal commitment by Türkiye and Pakistan to militarily confront Iran in the event of regional conflict.

Ans : C
Its significance lies in collective defence, deterrence and diversification of regional security partnerships.

Q. Which of the following best explains the destructive evolution of the Wayanad landslide?

- (a) Extreme rainfall directly converted the entire slope into a debris flow without geological influence.
- (b) Rainfall increased water pressure in a weakened slope, while valley constrictions temporarily accumulated debris before their collapse intensified downstream surges.
- (c) Strong crystalline rocks prevented slope failure but diverted rainfall into the valley.
- (d) Chemical weathering strengthened fractured rocks, allowing them to withstand intense rainfall.

Answer: (b)

Analogue Paneer: Food Safety, Labelling and Consumer Protection

Maharashtra and Gujarat have banned the manufacture and sale of non-standardised “analogue” paneer, following similar action by Chhattisgarh on August 1, 2026, amid concerns over mislabelling and unfair trade practices involving restaurants, hotels and cloud kitchens.

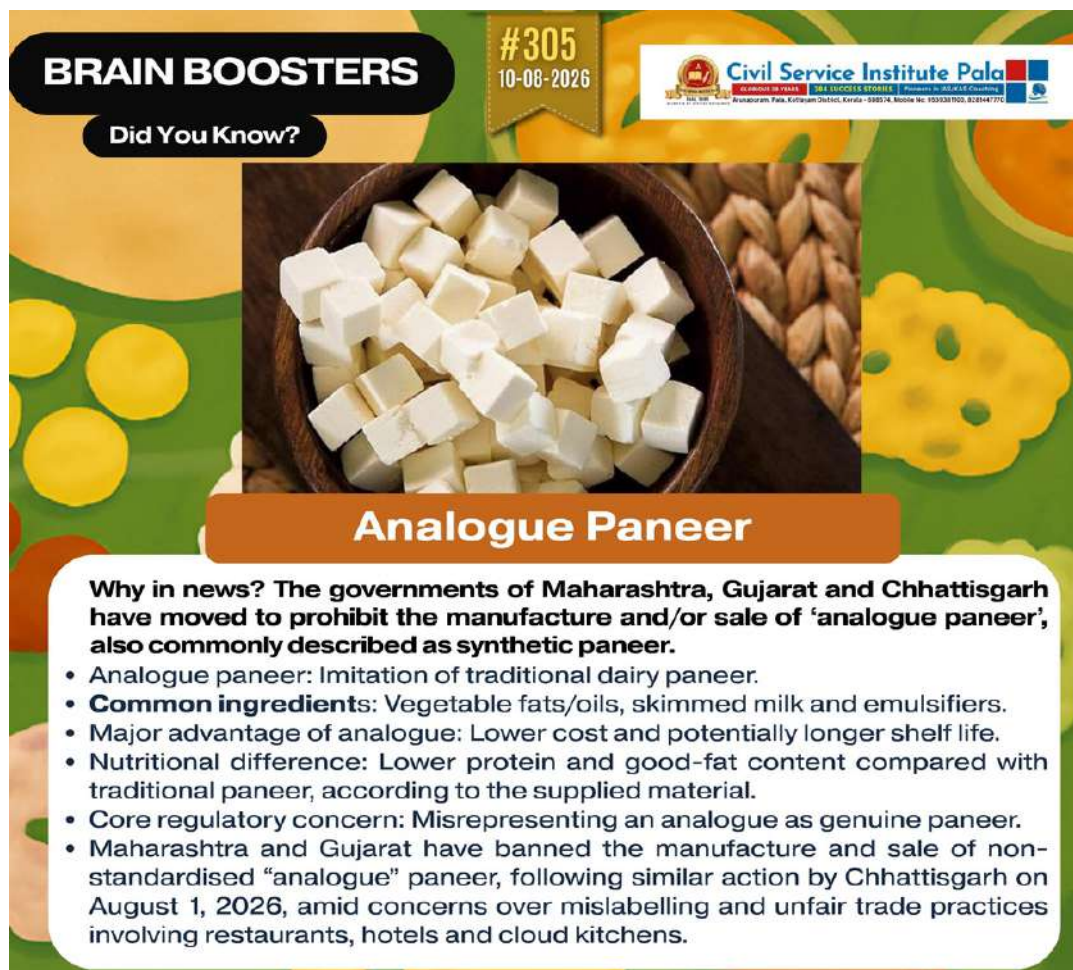
What is Analogue Paneer?

- Analogue paneer, also commonly called synthetic paneer, is an imitation of traditional dairy paneer that is formulated primarily using vegetable fats or edible oils rather than relying entirely on milk fat.
- It may contain ingredients such as skimmed milk powder, vegetable oil, emulsifiers and stabilisers, which are processed together to reproduce the appearance and texture of conventional paneer.
- Traditional paneer is produced by curdling milk and separating its semi-solid portion, whereas analogue paneer is manufactured through the formulation and processing of specified ingredients.
- The use of vegetable oils and other formulated ingredients makes analogue paneer cheaper to produce and generally gives it a longer shelf life than conventional paneer.

Why is it a Food Safety and Labelling Issue?

- The central concern is not simply that analogue products exist, but that they may be sold or represented to consumers as genuine paneer without accurately disclosing their composition.
- Analogue paneer is therefore different from an adulterated product in a narrow sense because the problem highlighted by the authorities is particularly associated with misrepresentation, improper naming and violation of food-labelling requirements.
- The Food Safety and Standards Authority of India (FSSAI) stated in its April 29, 2026 notice that cheese analogues sold as “paneer” constitute a grave violation, and directed that such practices cease.
- FSSAI also clarified that manufacturers supplying cheese analogues to food businesses must use accurate and appropriate naming, while restaurants and hotels must not use cheese analogues under the name “paneer”.

RELEVANCE GS III : Science and Technology



Recent State-level action

- Chhattisgarh banned the sale of analogue paneer on August 1, 2026, although its Health Minister indicated that manufacturing units would not immediately be sealed because most States had not yet imposed similar restrictions.
- Maharashtra subsequently imposed a ban accompanied by stringent penalties, including imprisonment of up to six months with a fine of ₹1 lakh in certain cases and more severe penalties extending to life imprisonment with a minimum fine of ₹10 lakh.
- Gujarat prohibited the manufacture, processing, packing, storage, transportation, distribution, sale, offering for sale and use in food-service establishments of non-standardised dairy analogues that imitate paneer, cream, butter or other dairy products or create the impression that they are genuine dairy products.

How Can Analogue Paneer Be Identified?

- An iodine test is cited as one commonly used method for checking paneer authenticity, although such a test should not be treated as a complete substitute for laboratory-based food testing.
- Under the commonly described procedure, a small piece of paneer is boiled, allowed to cool and then exposed to a few drops of iodine solution, with a blue or black colour change being treated as an indication of starch-containing or artificially formulated material.