

THE DAILY UPSC BRIEF

HIGH-YIELD DAILY SOURCES & ANALYSIS | 22 SEPTEMBER 2026

TODAY'S COVERAGE Table of Contents

12 **4** **12**
ARTICLES GS PAPERS MCQS & MAINS QS

GS Paper 1: Indian Society and Culture — Page 1

1. The Persistent Antagonism Towards Urdu 1

GS Paper 2: Polity, Governance and International Relations — Page 2

2. Right to Know Grounds of Arrest is Sacrosanct: Supreme Court 2
3. Delhi's Special Intensive Revision: Disenfranchisement Concerns Grow 2
4. Supreme Court Strikes Down Maharashtra's Methanol Denaturing Rules 3
5. A Malacca-Singapore Model for Resolving the Hormuz Impasse 4
6. India Joins Push for UN-Based Multilateralism Beyond 'Superpower Politics' 5

GS Paper 3: Economy, Environment, Science and Technology — Page 7

7. India-New Zealand Free Trade Agreement to Take Effect from October 20 7
8. The Arithmetic of Tamil Nadu's \$1.5 Trillion Growth Ambition 8
9. Kasturirangan Report Implementation 'Threatens Livelihoods': Karnataka CM 8
10. How Will Gaganyaan's Crew Module Deploy Its Parachutes? 9
11. Why Scientists Are Rethinking the Chemical 'Arms Race' Against Fungi 11

GS Paper 4: Ethics, Integrity and Aptitude — Page 12

12. Institutional Response to the Jamui Incident: A Case in Empathy and Accountability 12

HOW TO READ THIS BRIEF

- ☐ Why in News / Target Prelims MCQ ☐ How to Use in UPSC Mains ☐ Mains Practice / Case Study Question
☒ Correct Answer

GS Paper 1: Indian Society and Culture

The Persistent Antagonism Towards Urdu

Why in news: A Supreme Court Bench in April 2025 upheld Urdu on a Maharashtra municipal council's signboard, reviving debate over the language being wrongly equated with a single religious community.

Key Details:

- **SC's reasoning:** Justices Dhulia and Chandran held that "language belongs to a community, region, people but not a religion," dismissing the challenge to Urdu signage.
- **Shared linguistic roots:** Urdu evolved from the same Khari Boli/Hindustani base as Hindi, later enriched with Persian, Arabic and Turkish vocabulary.
- **Colonial-era trigger:** Replacing Persian with Urdu in Perso-Arabic script for official use (1837) in north India's provinces fuelled the 19th-century Hindi movement.
- **Present-day perception:** Per scholar Paul Brass, antagonism persists from treating Urdu as exclusively a Muslim language, despite historical patronage by Hindus and Sikhs.

Data/Facts/Example:

- **Constitutional basis:** Article 345 lets a State legislate its own official language(s); Article 347 lets the President recognise a language for a section of a State's population.
- **Eighth Schedule:** Urdu is one of 22 scheduled languages; the last entrants (Bodo, Dogri, Maithili, Santhali) were added only via the 92nd Amendment Act, 2003.
- **Legal precedent:** The Bombay HC (2022) and the SC (April 2025) both found no bar on Urdu signage under the Maharashtra Local Authorities (Official Languages) Act, 2022.

How to use in UPSC Mains: Cite as a case of script/language being wrongly equated with religious identity while answering on linguistic pluralism or Article 29-30 minority rights.

MAINS PRACTICE QUESTION

Q. 'Language is often mistaken for religious identity in India's public discourse.' Discuss this statement with reference to the socio-political history of the Hindi-Urdu divide, and examine its implications for the linguistic pluralism guaranteed under the Constitution. (250 words)

Related PYQ: UPSC Prelims 2024: 'The Constitution (71st Amendment) Act, 1992 amends the Eighth Schedule to the Constitution to include which of the following languages? 1. Konkani 2. Manipuri 3. Nepali 4. Maithili' (options test combinations) — Answer: Konkani, Manipuri and Nepali (Maithili followed later, via the 92nd Amendment Act, 2003).

■ **[Abbreviations & Terminology]:** SC: Supreme Court | HC: High Court

GS Paper 2: Polity, Governance and International Relations

Right to Know Grounds of Arrest is Sacrosanct: Supreme Court

Why in news: The SC held that an arrested person's right to know the grounds of arrest in writing and to counsel of choice under Article 22(1) "cannot be breached under any situation."

Key Details:

- **Universal application:** Justice Ujjal Bhuyan's Bench ruled Article 22(1) protections apply across all offences, including those under UAPA and PMLA.
- **No blanket immunity:** An accused released for an Article 22(1) breach is not automatically entitled to bail on merits, nor immune from a fresh, lawful re-arrest.
- **Fresh sanction needed:** Any second arrest attempt requires recorded reasons placed before a Magistrate; agencies "had it completely wrong" to call this a mere lapse.
- **Distinct from Clause (2):** Article 22(2) separately mandates production before a Magistrate within 24 hours of arrest — a different safeguard from the Clause (1) right at issue.

Data/Facts/Example:

- **Legal basis:** Article 22(1) guarantees the right to be informed of arrest grounds "as soon as may be" and to consult a legal practitioner of choice.
- **Precedent reinforced:** The ruling builds on D.K. Basu v. State of West Bengal (1997), which laid down 11 mandatory safeguards for arrest and custody procedure.
- **Scope:** Safeguards bind ordinary IPC/BNS investigations and special-law agencies like the NIA and ED equally, per the Bench.

How to use in UPSC Mains: Argue that procedural due process under Article 21-22 constrains even special-law agencies, reinforcing citizens' protection from arbitrary state power.

TARGET PRELIMS MCQ

Q. With reference to Article 22 of the Constitution of India, consider the following statements:

1. It guarantees a person's right to be informed of the grounds of arrest and to consult a legal practitioner of choice.
2. Clause (2) of Article 22 mandates production of an arrested person before a Magistrate within 24 hours of arrest.
3. Preventive detention laws are wholly exempt from the safeguards under Article 22.

Which of the statements given above is/are correct?

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

Answer: (a) 1 and 2 only

Explanation: Article 22(3) excludes preventive detention laws (and enemy aliens) from Clauses (1) and (2), but Clauses (4)-(7) separately impose their own distinct safeguards on preventive detention — so statement 3 is incorrect.

■ **[Abbreviations & Terminology]:** SC: Supreme Court | UAPA: Unlawful Activities (Prevention) Act | PMLA: Prevention of Money Laundering Act | NIA: National Investigation Agency | ED: Enforcement Directorate | IPC: Indian Penal Code | BNS: Bharatiya Nyaya Sanhita

Delhi's Special Intensive Revision: Disenfranchisement Concerns Grow

Why in news: With days left before the September 30 deadline, the BJP and Congress both sought extensions for filing claims/objections, as fewer electors now appear on Delhi's draft rolls than voted in 2025.

Key Details:

- **Fewer electors, 24 seats:** The Hindu's analysis found the draft roll now records fewer electors than voted in the February 2025 Assembly poll in 24 of Delhi's 70 constituencies.

- **Notices lag behind:** The ECI has issued notices to only about half the flagged electors so far; the BJP and Congress sought extensions to Oct. 15 and Nov. 30 respectively.
- **Burden on the elector:** SIR requires electors to newly link themselves to enumeration forms; 20.12 lakh electors (6.03%) whose forms were not returned were excluded from the draft roll.
- **Timeline:** Claims and objections are to be disposed of by October 29, with the final Delhi roll due for publication on November 4.

Data/Facts/Example:

- **Delhi numbers:** 13.79 lakh electors are under notice, and 19.33 lakh more are flagged for unspecified 'logical discrepancies.'
- **West Bengal caution:** Only 3.2% of 38 lakh SIR appeals there were disposed by September 2026, and about 93% of those decided restored the elector to the rolls.
- **Legal anchor:** Lal Babu Hussein v. Electoral Registration Officer (1995) held no elector's name may be deleted without recorded reasons and a hearing.

How to use in UPSC Mains: Cite West Bengal's post-appeal inclusion rate as evidence that the burden of proving eligibility should not fall entirely on the elector during SIR.

MAINS PRACTICE QUESTION

Q. Discuss the constitutional and statutory basis of the Election Commission of India's power to revise electoral rolls. With reference to recent Special Intensive Revision exercises, examine whether placing the burden of proof on electors is consistent with universal adult suffrage under Article 326. (250 words)

■ **[Abbreviations & Terminology]:** SIR: Special Intensive Revision | ECI: Election Commission of India | ERO: Electoral Registration Officer

Supreme Court Strikes Down Maharashtra's Methanol Denaturing Rules

Why in news: The SC struck down Maharashtra rules mandating colourant/bitterant additives in methanol sold to non-drug manufacturers, holding the restriction disproportionate and violative of Articles 14 and 19(1)(g).

Key Details:

- **Proportionality applied:** Applying the framework from K.S. Puttaswamy v. Union of India (2017), the Bench found the rule a suitable but not necessary or proportionate means to a legitimate aim.
- **No proven nexus:** Rule 18A(1) required denaturing methanol before sale, but the Court found no proven link to preventing its diversion into illicit liquor "in the unregulated field."
- **Form A/B conflict:** Rule 18B, allowing confiscation of methanol held without a Form A licence, could override lawful Form B permits, rendering them redundant.
- **Guidelines issued instead:** The Court directed States to strengthen licence verification, dedicated tanker transport, stock audits and inter-departmental coordination instead.

Data/Facts/Example:

- **Origin of the rules:** Maharashtra introduced Rules 18A-18B in 2011 after the 1991 Mumbai hooch tragedy, in which around 93 people died from methanol-adulterated liquor.
- **Four-pronged test:** Proportionality review asks: is the aim legitimate, is the measure suitable, is it the least restrictive means (necessity), and does it balance rights against the aim.
- **Affected industries:** Denaturing burdened paint, resin, formaldehyde and pharmaceutical manufacturers who rely on pure, uncoloured methanol as feedstock.

How to use in UPSC Mains: Use as a fresh application of the proportionality test first entrenched by Puttaswamy, extending it beyond privacy to ordinary trade regulation.

TARGET PRELIMS MCQ

Q. With reference to the doctrine of proportionality as applied by Indian courts, consider the following statements:

1. It was first authoritatively laid down by the Supreme Court in *K.S. Puttaswamy v. Union of India* (2017).
2. A measure must be shown to be the least restrictive means of achieving a legitimate State aim to satisfy the test.
3. The doctrine can only be invoked to test restrictions on Fundamental Rights under Article 21.

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: (a) 1 and 2 only

Explanation: The proportionality test has since been applied well beyond Article 21 — including, as here, to Articles 14 and 19(1)(g) — so statement 3 is incorrect.

Related PYQ: UPSC Prelims 2018: 'Right to Privacy is protected as an intrinsic part of the Right to Life and Personal Liberty. Which of the following in the Constitution of India provides this protection?' — Answer: Article 21, per *K.S. Puttaswamy v. Union of India* (2017), the very judgment whose proportionality framework the Court applied here to strike down the methanol rules.

■ **[Abbreviations & Terminology]:** SC: Supreme Court

A Malacca-Singapore Model for Resolving the Hormuz Impasse

Why in news: With the Strait of Hormuz still effectively closed and the U.S. rejecting an Iran-Oman reopening framework, the 1970s Malacca-Singapore cooperative mechanism offers a possible template.

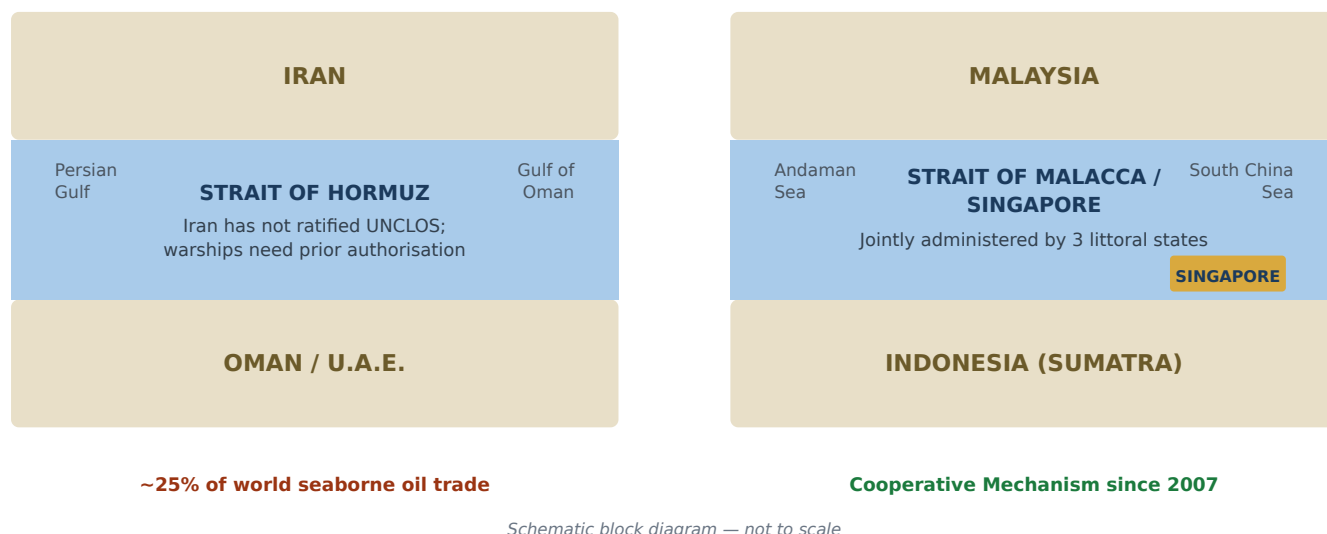
Key Details:

- **How the deadlock formed:** Once Indonesia and Malaysia both claimed 12-NM territorial seas (1957-58), the under-24-NM-wide Malacca-Singapore Straits left no high-seas corridor between them.
- **UNCLOS's compromise:** UNCLOS's 'transit passage' concept guaranteed 'continuous and expeditious' passage, even for warships, in exchange for littoral states keeping sovereignty.
- **2007 Cooperative Mechanism:** Indonesia, Malaysia and Singapore jointly run an Aids to Navigation Fund financed voluntarily by user states and industry, including Japan's Nippon Foundation.
- **Hormuz's key difference:** Iran has not ratified UNCLOS and, under a 1993 law, requires foreign warships to seek prior authorisation to pass through the Strait — a persistent sore point.

Data/Facts/Example:

- **Scale of the chokepoint:** About 25% of world seaborne oil trade (roughly 20 million barrels/day in 2025) transits the Strait of Hormuz, per the International Energy Agency.
- **Narrow geography:** Both straits narrow to under 24 nautical miles, eliminating any high-seas corridor once littoral states claimed 12-NM territorial waters.
- **Stalled U.S. buy-in:** Even where Iran and Oman have reportedly agreed on a reopening framework, the U.S. has so far not accepted the arrangement.

Two Chokepoints Compared: Hormuz vs. Malacca-Singapore



How to use in UPSC Mains: Use as a case study on cooperative maritime governance under UNCLOS's transit-passage regime, contrasting an institutionalised chokepoint with a contested one.

MAINS PRACTICE QUESTION

Q. Examine the concept of 'transit passage' under UNCLOS. Discuss, with reference to the Malacca-Singapore Straits' Cooperative Mechanism, whether a similar multilateral framework could help resolve the contemporary impasse over the Strait of Hormuz. (250 words)

■ **[Abbreviations & Terminology]:** UNCLOS: United Nations Convention on the Law of the Sea | NM: Nautical Miles | EEZ: Exclusive Economic Zone

India Joins Push for UN-Based Multilateralism Beyond 'Superpower Politics'

Why in news: EAM S. Jaishankar is set to attend the 'Partners for Multilateralism' (P4M) meeting at the UN, a grouping founded by the EU, Brazil, Kenya and Canada to push for a reformed, representative UN.

Key Details:

- **Not a rival bloc:** P4M explicitly disclaims creating 'another exclusive bloc', framing itself instead as an open, cross-regional coalition on UN reform, AI, climate and health security.
- **Guterres's warning:** UN Secretary-General António Guterres told The Hindu "superpowers are discovering their limits," citing Russia's war in Ukraine and U.S. difficulties over Iran.
- **Record conflict data:** 2025 recorded the highest number of state-based armed conflicts since 1946 (35 countries) and global military spending near \$3 trillion, Guterres noted.
- **India's status unclear:** It remains unclear whether India was formally invited to co-found P4M, though it already engages other plurilateral groupings including BRICS and the G20.

Data/Facts/Example:

- **Distinct from BRICS/G20:** P4M says its purpose is "the opposite" of an exclusive bloc: "to create a flexible, open framework" across regions and political traditions.
- **India's other track:** India is separately part of the G4 (with Brazil, Germany and Japan), which jointly seeks permanent UN Security Council seats — a distinct grouping from P4M.
- **UNGA session:** EAM Jaishankar is due to address the UN General Assembly's High-Level segment on September 26, 2026.

How to use in UPSC Mains: Use to illustrate India's multi-alignment foreign policy — parallel engagement across BRICS, the G20, the G4 and now P4M.

TARGET PRELIMS MCQ

Q. Consider the following pairs of groupings and their founding/leading members:

1. G4 — Brazil, Germany, India, Japan
2. Partners for Multilateralism (P4M) — European Union, Brazil, Kenya, Canada
3. BRICS — Brazil, Russia, India, China, South Africa (founding/early members)

Which of the pairs given above is/are correctly matched?

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

Answer: (d) 1, 2 and 3

Explanation: All three pairings are accurate: the G4 seeks UNSC reform, P4M was launched by the EU, Brazil, Kenya and Canada, and BRICS' early members were Brazil, Russia, India, China and (from 2010) South Africa.

■ **[Abbreviations & Terminology]:** EAM: External Affairs Minister | UN: United Nations | UNGA: United Nations General Assembly | P4M: Partners for Multilateralism | EU: European Union

GS Paper 3: Economy, Environment, Science and Technology

India-New Zealand Free Trade Agreement to Take Effect from October 20

Why in news: The India-New Zealand FTA, ratified Monday, comes into force on October 20, targeting a doubling of bilateral trade to ₹35,000 crore in 4-5 years while shielding India's sensitive farm sectors.

Key Details:

- Asymmetric access:** The FTA eliminates New Zealand's import levies on all Indian goods; 95% of NZ's exports to India get tariff-free or “sharply reduced” access, per NZ's trade office.
- Sensitive sectors shielded:** India excluded dairy and select farm produce (onions, almonds, chickpeas, peas, artificial honey, sugar) from any tariff relaxation.
- Investment commitment:** New Zealand has committed \$20 billion in FDI into India as part of the deal; officials flagged kiwi farming and apiculture for possible tech transfer.
- Small trading base:** Bilateral trade stood at just \$1.3 billion in FY 2024-25, making New Zealand India's ninth-largest export market — a base the FTA aims to substantially expand.

Data/Facts/Example:

- Timeline:** The deal was ratified on September 21, 2026, and enters into force on October 20, 2026.
- Global backdrop:** Commerce Minister Piyush Goyal linked the deal's timing to global trade “uncertainty,” citing escalating tariffs and trade barriers elsewhere.
- Recurring precedent:** India similarly excluded dairy from tariff concessions in the 2022 India-Australia ECTA, alongside wheat, rice and sugar — now a consistent FTA negotiating stance.

India-New Zealand FTA: Key Numbers

Metric	Figure
Trade target	₹35,000 crore within 4-5 years
Current bilateral trade (FY 2024-25)	\$1.3 billion
NZ's committed FDI into India	\$20 billion
India's market access in NZ	Tariffs eliminated on all goods
NZ's market access in India	95% tariff-free/reduced; dairy & select farm goods protected
Effective date	October 20, 2026

How to use in UPSC Mains: Cite as India's now-familiar FTA template — near-total access abroad while ring-fencing sensitive sectors like dairy, also seen in the RCEP exit.

MAINS PRACTICE QUESTION

Q. Examine how India's recent free trade agreements balance the objectives of expanding export market access and protecting domestically sensitive sectors such as agriculture. (250 words)

Related PYQ: UPSC Mains 2018, GS Paper III: ‘How would the recent phenomena of protectionism and currency manipulations in world trade affect macroeconomic stability of India?’ (15 marks) — tests the same global-trade-uncertainty concern the Commerce Minister cited while framing this FTA.

■ **[Abbreviations & Terminology]:** FTA: Free Trade Agreement | FDI: Foreign Direct Investment | NZ: New Zealand | RCEP: Regional Comprehensive Economic Partnership

The Arithmetic of Tamil Nadu's \$1.5 Trillion Growth Ambition

Why in news: Tamil Nadu's target of a \$1.5 trillion economy by 2035-36 needs sustained double-digit real growth rarely achieved even in the State's strongest historical years.

Key Details:

- **Scale of the ask:** Reaching \$1.5 trillion by 2035-36 needs a 4.9-fold rise from TN's ₹35.29 lakh crore GSDP (2025-26); real growth exceeded 12% in only three years historically.
- **Fastest scenario:** A 17.2% nominal (12.2% real) growth path would reach developed-country per-capita status by 2036-37, driven by an assumed 2%/year rupee appreciation.
- **Most likely scenario:** At a more realistic 14% nominal growth rate, the \$1.5 trillion GSDP target itself is reached only around 2038-39, three years past the original goalpost.
- **Investment implication:** Sustaining 10% real growth would require an investment rate of 40% of GSDP, assuming an Incremental Capital-Output Ratio (ICOR) of 4.

Data/Facts/Example:

- **Historical performance:** TN grew at 10.3% annually (2004-05 prices) from 2005-06 to 2011-12, above the all-India 8.2%; growth slowed to 6.98% (2012-13 to 2018-19) at 2011-12 prices.
- **Recent rebound:** Growth improved to 9.1% between 2021-22 and 2025-26, again ahead of the all-India rate of 8.1% for the same years.
- **National benchmark:** India's national investment rate (Gross Fixed Capital Formation) stood at 30.5% of GDP in H1 FY26 — well short of the 40% TN would need for 10% real growth.

Tamil Nadu's \$1.5-Trillion Target: Growth Scenarios

Nominal / Real Growth	\$1.5tn GSDP Target Reached	Developed-Country Per Capita Reached
17.2% / 12.2% (fastest)	Original 2035-36 pace held	2036-37
15% / 10%	2037-38	2037-38
14% / ~9% (most likely)	2038-39	—

How to use in UPSC Mains: Use the ICOR-investment linkage (40% investment for 10% real growth at ICOR=4) to answer on capital efficiency and State-level growth planning.

TARGET PRELIMS MCQ

Q. With reference to economic growth measurement, consider the following statements:

1. The Incremental Capital-Output Ratio (ICOR) measures the additional capital required to produce one additional unit of output.
2. A lower ICOR indicates greater efficiency in the use of capital.
3. Gross State Domestic Product (GSDP) is measured only at current (nominal) prices.

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: (a) 1 and 2 only

Explanation: GSDP is compiled both at current (nominal) prices and at constant (real) prices for a fixed base year, so statement 3 is incorrect.

■ **[Abbreviations & Terminology]:** GSDP: Gross State Domestic Product | ICOR: Incremental Capital-Output Ratio | TN: Tamil Nadu

Kasturirangan Report Implementation 'Threatens Livelihoods': Karnataka CM

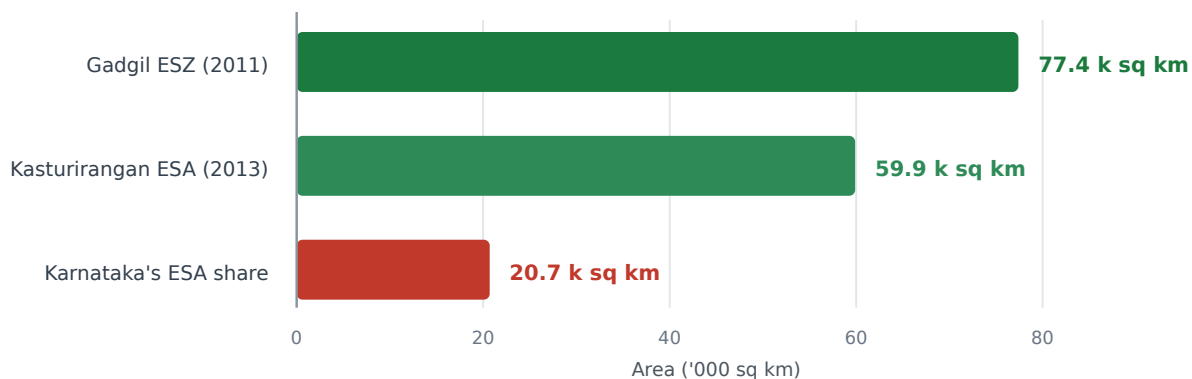
Why in news: Karnataka's CM told the Assembly that implementing the Kasturirangan Committee's Western Ghats report could threaten livelihoods across 10 districts, even while reaffirming a conservation commitment.

Key Details:

- **Karnataka's share:** The report identifies 20,668 sq km of Karnataka's Western Ghats (1,449 villages) as ecologically sensitive, stoking farmer fears over land-use restrictions.
- **Farmer demands:** Farmers sought rejection of the report and a fresh committee, arguing “unscientific” measures created “an atmosphere of fear,” especially in Malnad.
- **Hydrological stakes:** More than six rivers originate in Karnataka's Western Ghats stretch, underlining the region's significance beyond the livelihood debate.
- **Centre's deadline:** The Centre has asked Karnataka to convey its final decision on the report by September 27, 2026.

Data/Facts/Example:

- **All-India scale (2013):** The Kasturirangan Committee recommended about 59,940 sq km — 37% of the 1,64,280 sq km Western Ghats landscape across 6 States — as Ecologically Sensitive Area.
- **Compared to Gadgil (2011):** The stricter Gadgil Committee had earlier recommended about 77,400 sq km (60% of a smaller, 1,29,037 sq km, Western Ghats boundary) for the highest protection tier.
- **Largest single share:** Karnataka's flagged 20,668 sq km across 1,449 villages and 10 districts is the largest single-State share of the Kasturirangan ESA.

Western Ghats: Ecologically Sensitive Area Recommendations

How to use in UPSC Mains: Use the Gadgil-vs-Kasturirangan area gap to illustrate the recurring theme of balancing ecological conservation against livelihood concerns.

MAINS PRACTICE QUESTION

Q. Compare the approaches of the Gadgil Committee and the Kasturirangan Committee to demarcating Ecologically Sensitive Areas in the Western Ghats. Examine why, over a decade later, the recommendations remain unimplemented in several States. (250 words)

Related PYQ: UPSC Prelims 2016: “‘Gadgil Committee Report’ and ‘Kasturirangan Committee Report’, sometimes seen in the news, are related to: (a) Constitutional reforms (b) Ganga Action Plan (c) Linking of rivers (d) Protection of the Western Ghats’ — Answer: (d) Protection of the Western Ghats.

■ **[Abbreviations & Terminology]:** ESA: Ecologically Sensitive Area | ESZ: Eco-Sensitive Zone | CM: Chief Minister

How Will Gaganyaan's Crew Module Deploy Its Parachutes?

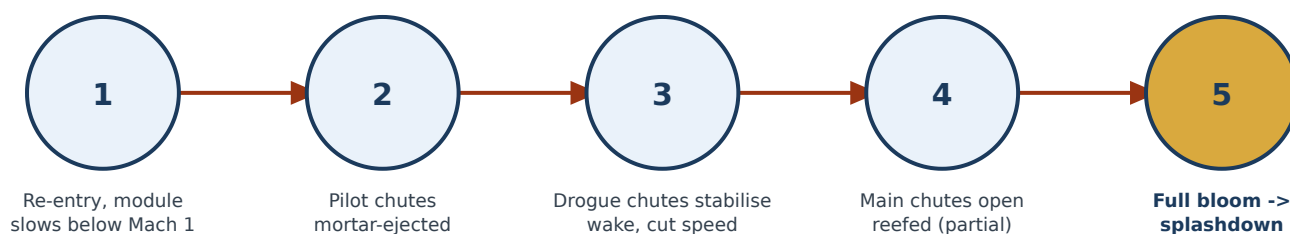
Why in news: With India's first crewed Gaganyaan flight now targeted for early 2027, the mission's multi-staged, redundant parachute system is central to a safe splashdown after re-entry.

Key Details:

- **Three chute types in sequence:** Pilot, drogue and main chutes deploy in sequence via mortar-ejection or pyro cutters, once the module has slowed below the speed of sound.
- **Why multi-staging:** Deploying one large canopy straight away risks a high opening shock; staged drogue-then-main deployment keeps dynamic pressure on the chutes within safe limits.
- **Built-in redundancy:** Two drogue and three main chutes give redundant chains, so even one main chute failing still leaves two independent chutes for a safe touchdown.
- **Mission-specific materials:** Kevlar carries high-load suspension lines, Nomex resists heat near mortar-gas discharge points, and Nylon absorbs the canopy's initial shock load.

Data/Facts/Example:

- **Target date:** India's first crewed Gaganyaan flight is now targeted for the first quarter of 2027, after the programme entered its final uncrewed test phase.
- **Testing infrastructure:** Parachutes are tested via the Terminal Ballistic Research Laboratory's rail-track rocket sled in Chandigarh, besides helicopter and aircraft drop tests.
- **Nodal agency:** ADRDE, Agra, a DRDO laboratory, develops the crew module's parachute systems.

Gaganyaan Crew Module: Multi-Staged Parachute Sequence

Redundancy: 2 drogue chutes + 3 main chutes — any one chute in each set can fail without losing the crew

Schematic sequence diagram — not to scale

How to use in UPSC Mains: Use redundancy-by-design (independent parachute chains) as an example of fail-safe engineering in human-rated spaceflight risk management.

TARGET PRELIMS MCQ

Q. With reference to the Gaganyaan crew module's recovery system, consider the following statements:

1. The pilot chute is deployed first to pull out the wider drogue or main chutes.
2. Multi-staged deployment keeps dynamic pressure on the parachute within acceptable limits.
3. ADRDE, Agra, an ISRO facility, develops the crew module's parachutes.

Which of the statements given above is/are correct?

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

Answer: (a) 1 and 2 only

Explanation: ADRDE, Agra functions under the Defence Research and Development Organisation (DRDO), not ISRO, so statement 3 is incorrect.

■ **[Abbreviations & Terminology]:** ISRO: Indian Space Research Organisation | DRDO: Defence Research and Development Organisation | ADRDE: Aerial Delivery Research and Development Establishment

Why Scientists Are Rethinking the Chemical 'Arms Race' Against Fungi

Why in news: New Indian research shows *Candida auris* resists antifungals through both genetic mutation and gene duplication, prompting calls to abandon simply escalating antifungal doses.

Key Details:

- **High azole resistance:** Over 90% of *C. auris* clinical isolates across India resist azole antifungals like fluconazole, per a PGIMER Chandigarh-enabled genomic study.
- **Two resistance routes:** Extra copies of the *Erg11* gene raise ergosterol production to defeat azoles, while *Fks1* gene mutations let the fungus tolerate high echinocandin doses.
- **The 'Eagle effect':** At very high caspofungin doses, *C. auris* paradoxically survives by activating compensatory chitin production in its cell wall.
- **Climate link:** Global warming may select for heat-tolerant fungal strains more likely to also survive the human body's 37°C — the 'mammalian selection hypothesis.'

Data/Facts/Example:

- **Mortality:** *Candida auris* bloodstream infections carry a 30-40% mortality rate, per PGIMER's Professor Shivaprakash Rudramurthy.
- **WHO classification:** The WHO's 2022 Fungal Priority Pathogens List places *Candida auris* in its highest 'critical priority' group, alongside *Aspergillus fumigatus*.
- **India's burden:** Roughly 20% of hospital infections in India are fungal, though most hospitals lack the capacity to identify the causative species.

Candida auris: Two Independent Resistance Mechanisms

Drug Class	Resistance Mechanism	Effect
Azoles (e.g., fluconazole)	Extra copies of the <i>Erg11</i> gene	Over-produces ergosterol, diluting the drug's target
Echinocandins (e.g., caspofungin)	<i>Fks1</i> gene mutation + 'Eagle effect'	Tolerates doses up to 16 µg/mL (8x the standard 2 µg/mL test limit)

How to use in UPSC Mains: Link to India's broader Antimicrobial Resistance challenge, noting this extends the 'superbug' concern from bacteria to fungi.

TARGET PRELIMS MCQ

Q. With reference to *Candida auris*, consider the following statements:

1. It is a species of yeast, not a mould.
 2. It was first reported globally in 2009, in Japan.
 3. The World Health Organization has placed it in the 'critical priority' category of its Fungal Priority Pathogens List.
- 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) 1, 2 and 3

Explanation: All three statements are accurate: *C. auris* is a yeast (not a mould), was first reported in Japan in 2009, and sits in the WHO's 'critical priority' group under its 2022 Fungal Priority Pathogens List.

■ **[Abbreviations & Terminology]:** AMR: Antimicrobial Resistance | PGIMER: Postgraduate Institute of Medical Education and Research | WHO: World Health Organization

GS Paper 4: Ethics, Integrity and Aptitude

Institutional Response to the Jamui Incident: A Case in Empathy and Accountability

Why in news: After two Class 10 students were allegedly assaulted and harassed in Bihar's Jamui district, the NCW took swift suo motu cognisance, directing security, legal aid and psychological counselling.

Key Details:

- **Suo motu powers used:** NCW invoked its suo motu powers under the NCW Act, 1990, directing Bihar's DGP to register an FIR immediately and submit a detailed Action Taken Report.
- **Swift police action:** Bihar Police registered an FIR within a day of the video surfacing and arrested three of the accused; the State Women's Commission took parallel suo motu cognisance.
- **Welfare, not just prosecution:** NCW's directive went beyond punitive action, explicitly mandating psychological counselling — treating survivor well-being as an institutional priority.
- **GS4 concept illustrated:** This is a textbook instance of 'empathy, tolerance and compassion towards weaker sections' — one of UPSC's own named foundational values for civil service.

Data/Facts/Example:

- **Legal basis:** Section 10 of the National Commission for Women Act, 1990 empowers the NCW to take suo motu cognisance of any matter relating to deprivation of women's rights.
- **Response timeline:** The incident occurred on the evening of September 19, 2026; the FIR, arrests and NCW directive all followed within 2-3 days once the video surfaced.
- **Institutional layering:** Both a national body (NCW) and a State body (Bihar State Commission for Women) acted in parallel, without waiting for a formal complaint to be filed.

How to use in UPSC Mains: Cite as a real-world exemplar (not a dilemma) of institutional empathy and victim-centred governance, distinct from the more common case-study format.

MAINS PRACTICE QUESTION

Q. 'Empathy and compassion towards the weaker sections are among the foundational values expected of a civil servant.' Discuss this statement with a suitable illustration, and examine how institutional mechanisms such as the National Commission for Women operationalise this value in practice. (250 words)

■ **[Abbreviations & Terminology]:** NCW: National Commission for Women | DGP: Director General of Police | FIR: First Information Report