UPSC with SAURABH KAUSHIK

Current Affairs Notes · 6 July 2026

The Hindu · Indian Express · PIB | 16 Topics | GS 1 · 2 · 3 + Prelims + Mapping

[TH] The Hindu | [IE] Indian Express | [PIB] Press Info Bureau

INDEX OF TOPICS

#	Topic	GS Syllabus	Src
1	Odisha SIR: 20 Lakh Names Deleted From Draft Electoral Rolls	*GS2 – Governance; Electoral Rolls*	[TH]
2	Emergency Gas Curbs Eased as LNG Shipments Normalise Post-Hormuz	*GS3 – Economy; Energy*	[TH]
3	VB-G RAM G: Govt Releases Rs 25,863 Crore First Installment to States	*GS2 – Governance; Rural Dev*	[PIB]
4	Teejan Bai, Pandavani Legend of Chhattisgarh, Passes Away at 70	*GS1 – Art and Culture; Folk Art*	[TH]
5	BRICS Anti-Drugs Meet and BRICS Women Working Group — India Hosts	*GS2 – IR; GS3 – Security*	[PIB]
6	India Needs a Second Home for Asiatic Lions — Kuno to Barda	*GS3 – Environment; Wildlife*	[TH]
7	The Real Crisis in India's Fisheries	*GS3 – Economy; Blue Economy*	[TH]
8	The Right to Belong Beyond Official Documentation — Editorial	*GS2 – Polity; Citizenship*	[TH]
9	Hormuz to Home — India's Resilience in Uncertain Times	*GS3 – Economy; GS2 – IR*	[TH]
10	Milk Production in Gangetic Plains Nosedives Due to Climate Change	*GS3 – Environment; Agriculture*	[TH]
11	Synthetic Cell: A Machine That Could Reshape Biology	*GS3 – Science and Technology*	[TH]
12	OPEC+ Okays Further Oil Output Increase — Post-Hormuz Supply Strategy	*GS3 – Economy; Energy*	[IE]
13	Ethanol Crucial for India: Fastest, Cheapest Way to Decarbonise Road Mobility	*GS3 – Economy; Environment*	[IE/PIB]
14	INS Sudarshini Arrives in New York for US 250th Celebrations (LOKAYAN 2026)	*GS2 – IR; Naval Diplomacy*	[PIB]
15	ISRO Tests Key Component for Gaganyaan Mission	*GS3 – Space; Science*	[TH]
16	2 Crore Informal Workers in India's Big Cities; Hyderabad Tops	*GS3 – Economy; Labour*	[IE]

PIB HIGHLIGHTS — 6 JULY 2026 (Curated for UPSC)

1. VB-G RAM G: Rs 25,863 Crore First Installment Released to States

✓ Union Agriculture and Rural Development Minister Shivraj Singh Chouhan released the first installment of Rs 25,863 crore to states under the VB-G RAM G (Viksit Bharat — Gram Rozgar Aur Maulik Gram Vikas) scheme.

✓ This is the largest single release of rural development funds in a single installment in India's history; it will reach approximately 6 crore rural households across all 29 states and 6 UTs that have signed the VB-G RAM G MoU.

✓ Breakdown by component: MGNREGS wages component: Rs 12,400 crore (for wage payments at Rs 300/day minimum); PMAY-G (rural housing) component: Rs 8,000 crore; PMGSY (rural roads) component: Rs 3,200 crore; NRLM (rural livelihoods) component: Rs 2,263 crore.

✓ Conditionality: States must deploy district-level Convergence Committees; Andhra Pradesh is the launch state; all states expected to have committees operational by August 15, 2026 (Independence Day).

✓ Kharif stress context: The Rs 25,863 crore injection is timed to provide rural income support during the 2026 monsoon deficit (35% below LPA) — MGNREGS wages provide a cushion when agricultural employment shrinks in drought-stressed areas.

✓ GS2 Angle: VB-G RAM G; MGNREGS; PMAY-G; rural employment; cooperative federalism; fiscal transfer; Kharif 2026 stress.

🔔 2. BRICS Anti-Drug Agencies Meeting in Guwahati + BRICS Women Working Group in Kochi

✓ BRICS Heads of Anti-Drug Agencies Meeting (July 6-7, Guwahati, Assam): India is hosting this meeting under its BRICS 2026 Chairship; NCB (Narcotics Control Bureau) Director Gyaneshwar Singh leads India's delegation; agenda: sharing intelligence on transnational drug trafficking networks, synthetic drugs surge (methamphetamine/fentanyl from Golden Triangle), Afghan opium alternative routes, dark web drug markets.

✓ Why Guwahati: Assam's strategic location at the intersection of the Golden Crescent (via Northeast) and Golden Triangle (via Myanmar) routes makes Guwahati the appropriate venue — a symbolic statement about India's concerns about drug trafficking through the northeast.

✓ BRICS Women Working Group (July 6-7, Kochi, Kerala): India hosting under BRICS 2026 Chairship; focus: women's economic empowerment, gender-responsive climate policy, women in digital economy, safety of women in online spaces; connects to SCO Women's Forum (where India presented similar positions in June 2026).

✓ Two BRICS meetings simultaneously: The parallel hosting of the anti-drug meeting (security track) and the women's working group (social/economic track) in different cities demonstrates India's comprehensive BRICS chairship management — addressing multiple BRICS pillars simultaneously.

✓ GS2/GS3 Angle: BRICS 2026 Chairship; NCB; Golden Triangle; Golden Crescent; drug trafficking; BRICS women's agenda; India's multilateral diplomacy.

🔔 3. Ethanol Blending in India — PIB Backgrounder + LOKAYAN 2026 / INS Sudarshini

✓ ETHANOL BLENDING (PIB Backgrounder): India's Ethanol Blended Petrol (EBP) Programme targets E20 (20% ethanol blended with petrol) by 2025-26 and beyond; current achievement: E14 national average; year-on-year improvement from E6 (2020-21) to E14 (2025-26).

✓ Ethanol sources: Sugarcane (molasses, C-heavy, B-heavy, sugarcane juice) accounts for ~90% of India's fuel ethanol production; grain-based ethanol (maize, rice, surplus FCI stocks) is the second source; lignocellulosic (agricultural residue) ethanol is under development (DBT-funded pilot plants).

✓ Ethanol economic benefits: Saves $5+ billion/year in crude oil import substitution; Rs 90,000+ crore cumulative payments to farmers (FY22 to FY26) for sugarcane and grain sold for ethanol; reduces vehicle emissions by 35% (E20 vs. neat petrol on CO emissions per km); India's oil marketing companies (IOC, BPCL, HPCL) are mandated purchasers from distilleries.

✓ IE article context: 'Ethanol crucial for India — fastest, cheapest way to decarbonise road mobility'; at Rs 6-8/litre cost advantage over petrol on energy-equivalent basis; can be deployed immediately without new vehicle infrastructure (unlike EVs or hydrogen) — this is the 'blending' advantage over structural alternatives.

✓ LOKAYAN 2026 / INS SUDARSHINI: India's sail training ship INS Sudarshini arrived in New York for SAIL4TH 250 celebrations — the US 250th Independence Day (July 4, 2026) global maritime celebrations;

'LOKAYAN 2026' is India's participation in this multinational sailing event; INS Sudarshini is the Indian Navy's training vessel; the visit demonstrates India-US naval goodwill.

✓ GS3 Angles: Ethanol Blending Programme; EBP; E20 targets; agricultural income from ethanol; fuel decarbonisation; INS Sudarshini; LOKAYAN; India-US naval diplomacy.

GS PAPER 1 — History · Art and Culture

1. Teejan Bai, Pandavani Legend of Chhattisgarh, Passes Away at 70

[TH] Page 1

GS 1: Art and Culture: Pandavani folk art; Chhattisgarh cultural tradition; Padma awards; folk performing arts; tribal cultural heritage.

‣ Legendary Pandavani folk singer and Padma Vibhushan awardee Teejan Bai passed away at AIIMS Raipur on July 5, 2026 (early morning, cardiac arrest) after prolonged illness; she was 70.

‣ Awards: Padma Shri (1988), Padma Bhushan (2003), Padma Vibhushan (2019) — three Padma awards across three decades, the highest recognition in Indian performing arts.

‣ Born: Ganiyari village near Bhilai, Durg district, Chhattisgarh (1956); member of the Pardhi community — notified as a 'criminal tribe' under the British-era Criminal Tribes Act 1871 (repealed 1952); began learning Pandavani at age 13 from her maternal grandfather Brij Lal Pardhi.

‣ Legacy: Teejan Bai was the FIRST WOMAN to perform Pandavani in the Kapalik style (the standing, more dramatic form) — traditionally, Pandavani was performed only by men; she broke this gender barrier and transformed the art form from a village tradition to an internationally acclaimed performance art; performed in USA, UK, France, Japan, Russia, Australia, Germany.

What Is Pandavani?

- Pandavani: A traditional folk performance art of Chhattisgarh; narrates and enacts episodes from the Mahabharata; combines storytelling, singing, and theatrical performance; the lead performer (soloists) narrates different characters while accompanying musicians provide vocal and instrumental support (tambura — a traditional stringed instrument — is the signature instrument for Pandavani).
- Two principal styles: (1) Vedamati — performed seated; follows a more classical, formal format; (2) Kapalik — performed standing; known for dramatic, energetic, and improvisational presentation; Teejan Bai's style was Kapalik, which she elevated into a distinct form; the Kapalik style's energy and expressiveness made Pandavani internationally accessible.
- Traditional community: Pandavani is associated primarily with the Pardhi and Dewar communities of Chhattisgarh — communities that have historically been marginalised (Pardhis were 'criminal tribes' under British law); Teejan Bai's rise from a marginalised tribal community to India's most celebrated folk artist is a story of cultural resilience and social mobility.
- The tambura: Teejan Bai's signature 'tambura' — a one-stringed folk instrument (different from the classical tambura/tanpura of Hindustani music) — was both her musical backbone and her dramatic prop; her simultaneous playing and performing was her distinctive theatrical signature.

UPSC ANGLE

• The Criminal Tribes Act 1871: A colonial-era British law that designated entire communities as 'born criminals' — requiring registration with police, restricting movement, and making members subject to arrest without warrant; the Pardhi community (to which Teejan Bai belonged) was one of 150+ communities notified; the Act was repealed in 1952 after independence; the communities were 'denotified' — hence they are sometimes called 'denotified tribes' or DNTs; DNT welfare is a distinct policy area under MoSJE.

• Chhattisgarh's folk arts: Chhattisgarh is known for: Pandavani (Mahabharata narrative); Nacha (comedy theatre with music); Karma Nacha (harvest festival dance); Raut Nacha (Yadava community dance); Panthi (Satnamipanth religious dance); these reflect Chhattisgarh's diverse tribal and folk traditions.

- 📌 **Pandavani** — Folk performance art of Chhattisgarh; dramatic narration + singing + acting of Mahabharata stories; accompanied by tambura (one-stringed instrument); two styles: Vedamati (seated) + Kapalik (standing/dramatic); associated with Pardhi and Dewar tribal communities; Teejan Bai = most celebrated exponent.
- 📌 **Padma Vibhushan** — India's second-highest civilian award (after Bharat Ratna); Teejan Bai received Padma Shri (1988) + Padma Bhushan (2003) + Padma Vibhushan (2019) for her contribution to Indian folk performing arts; civil investiture at Rashtrapati Bhavan.

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2. Ram Vilas Paswan — Tribute on Birth Anniversary

[PIB] Page (Tribute)

GS 1 / GS 2: History: Ram Vilas Paswan; Dalit political leadership; LJP; EBC politics; modern Indian history.

▸ PM Modi paid tribute to Shri Ram Vilas Paswan on his birth anniversary (July 5, 1946 – October 8, 2020).
▸ Ram Vilas Paswan: Born July 5, 1946, Khagaria district, Bihar; died October 8, 2020 in Delhi at age 74; among the most prominent Dalit-EBC (Extremely Backward Class) political leaders in post-independence India.
▸ Political journey: Elected Member of Parliament 8 times (Hajipur constituency, Bihar — one of the longest-serving MPs from a single constituency); served as Union Minister in 6 different central governments (VP Singh, HD Deve Gowda, IK Gujral, AB Vajpayee, Manmohan Singh, and Narendra Modi); founder of Lok Janshakti Party (LJP).
▸ Key ministerial roles: Communications Minister; Railways Minister; Consumer Affairs, Food and PDS Minister (longest tenure); Union Minister for Food and Public Distribution.

- Legacy: Paswan was a master of coalition politics in India's multi-party, caste-stratified political landscape; known as a 'barometer of public mood' because he would join whichever party/coalition was likely to win (a pragmatic but politically astute approach); his LJP was a key NDA ally providing Bihar Dalit-EBC votes; he fought consistently for Dalit rights, reservation, and social justice.
- Dalit politics: Paswan represented Dusadh (Paswan) community (included in Scheduled Castes); unlike Mayawati's Bahujan Samaj Party which built a broader 'bahujan' coalition, Paswan's LJP was more narrowly focused on the Paswan community + NDA alliance; his political model of 'caste vote as coalition currency' shaped Bihar's politics for 4 decades.
- 📌 **LJP (Lok Janshakti Party)** — Founded by Ram Vilas Paswan; Bihar-based; primarily represents Paswan (Dusadh) community; key NDA ally; split into LJP (Ram Vilas) under Chirag Paswan (son) and Rashtriya LJP after Paswan's death; Chirag Paswan is now Union Minister for Food Processing under Modi 3.0.

GS PAPER 2 — Governance · Polity

3. Odisha SIR: 20 Lakh Names Deleted From Draft Electoral Rolls — 6% of Pre-SIR Electorate

[TH] Page 1

GS 2: Governance: Special Intensive Revision; Electoral Rolls; ECI; Article 324; citizenship documentation; democratic rights.

▸ Odisha's Chief Electoral Officer R.S. Gopalan: 20.14 lakh voter names have been deleted from Odisha's draft electoral rolls following the SIR enumeration exercise (May 30 – June 28, 2026).
▸ Scale: Pre-SIR Odisha electorate: 3.33 crore (frozen May 20); post-SIR draft roll: 3.13 crore; net deletion: 20.14 lakh (6.05% of pre-SIR electorate).

‣ Breakdown of deleted voters: Deaths: 8.32 lakh; Shifted (relocated/absent during exercise): 10.07 lakh; Duplicate registrations: 1.58 lakh; Other reasons: ~0.17 lakh.
‣ Manipur parallel: 1.6 lakh deleted in Manipur (7.64% of pre-SIR electorate) — the highest percentage in any state.

- The 10 lakh 'shifted/absent' category is the concern: The 8.32 lakh deaths are legitimate deletions; the 1.58 lakh duplicates are also valid; but the 10.07 lakh 'shifted or absent during enumeration' is where genuine voters may have been wrongly deleted — migrant workers in cities who couldn't return for the Booth-Level Officer visit, construction workers, students, seasonal agricultural labourers. Being 'absent during enumeration' doesn't make a person ineligible to vote.
- The SC's mandate (May 27, 2026): The Supreme Court upheld SIR's validity but specified: the EC CANNOT delete voters without following due process — notice + hearing + appeal opportunity; automatic deletion for 'failure to re-enrol' violates Article 326 (right to vote) if the person is genuinely eligible; the 10 lakh 'absent' deletions must be carefully reviewed for compliance with this SC mandate.
- Opposition reaction: Congress leader Rama Chandra Kadam alleged the deletions are politically motivated ('deletion of voters against the ruling BJP'); BJP MLA Babu Singh countered: 'ECI revised the list, not BJP; those with objections can apply through proper channels.' This political battle over SIR deletion is playing out across multiple states (Delhi, Odisha, Manipur are the first to publish draft rolls).
- ECI appointment of IAS observers: The ECI appointed 10 senior IAS officers as Electoral Roll Observers for Odisha — an unusual step signalling awareness of the political sensitivity and the need for independent oversight of the deletion process.

UPSC ANGLE
• 'Right to Belong' editorial connection: The editorial 'The right to belong beyond official documentation' (same issue) directly addresses the SIR's philosophical challenge — a person who has always considered themselves an Indian citizen but cannot produce the specific documents required by SIR may face deletion from the voter roll; their 'belonging' to India is denied by a documentation failure, not by any genuine question of their citizenship.
• Article 326: Universal adult suffrage in India — every citizen who is 18+ years and not otherwise disqualified (mental incapacity, non-citizenship, criminal conviction) has the right to vote; SIR deletions of 'genuine voters' due to absence during BLO visit would violate Article 326 unless due process (notice + hearing + appeal) was followed.

- **SIR (Special Intensive Revision) Deletions — Odisha 2026** — Odisha: 20.14 lakh deleted (6% of 3.33 crore pre-SIR electorate); breakdown: 8.32 lakh deaths + 10.07 lakh shifted/absent + 1.58 lakh duplicates; Manipur: 1.6 lakh (7.64%); SC (May 27, 2026): EC cannot delete without notice + hearing + appeal.

4. The Right to Belong Beyond Official Documentation — Editorial

[TH] Page Editorial

GS 2: Polity: Citizenship; documentation; SIR; NRC implications; Article 326; the right to belong.

‣ The Hindu editorial: The Odisha SIR deletions (20 lakh names), the Manipur deletions (1.6 lakh), and the conceptual challenge of the MEA's 'passport is not citizenship proof' statement together raise a fundamental question: in India, what does it mean to 'belong'?
‣ The editorial's core argument: Official documentation (Aadhaar, voter ID, passport) is increasingly being used as the DEFINITION of citizenship rather than EVIDENCE of citizenship; a person who has been a farmer in Odisha for 50 years, whose parents and grandparents were born there, who speaks Odia, who has lived in Odisha their entire life — but who cannot produce specific documents when a BLO (Booth-Level Officer) comes to their home — faces deletion from the voter roll. Their 'belonging' is reduced to paperwork.
‣ The historical rootedness argument: In India's diverse documentation landscape, there are millions of citizens (elderly tribal women, rural migrants, nomadic communities) who have minimal documentation — not because they are 'illegal' but because the documentation state never fully reached them; SIR's deletion of these citizens from voter rolls is an administrative act that denies democratic participation to India's most vulnerable citizens.

‣ The constitutional guarantee: Article 326 guarantees voting rights to every adult citizen; the SIR-deletion of 'absent' voters is defensible only if the deleted persons were genuinely non-residents OR genuinely non-citizens — NOT if they were simply unreachable during the BLO enumeration visit.

- The 'paperless Indian': Estimates suggest 10-15% of India's adult population lacks complete documentation (Aadhaar + photo ID + address proof); this population is disproportionately: tribal communities (5th Schedule areas with limited state penetration); nomadic communities (Gujjars, Bakarwals, Rebari); seasonal migrant workers; elderly rural women (who may never have had individual documentation, being listed as 'wife of...' in family records). SIR's enumeration format can systematically exclude these citizens.

UPSC ANGLE

• The Assam NRC parallel: Assam's NRC excluded 19.06 lakh persons in 2019; a significant proportion were documented as long-term Assam residents who could not produce the specific pre-1971 'legacy documents' required by the NRC format; the NRC and SIR share the structural characteristic of documentation-centric citizenship proof in a nation where documentation has historically been uneven.

• Way forward: The editorial argues for: appeal windows of at least 60 days; legal aid for citizens seeking to restore deleted voter names; presumption in favour of inclusion (not exclusion) for persons absent during BLO visits; Aadhaar-based verification as an alternative to physical BLO visits.

- **Article 326** — Universal adult suffrage — every citizen of India who is not otherwise disqualified shall be entitled to vote; SIR deletions of genuinely eligible voters without due process (notice + hearing + appeal) potentially violates Article 326.

GS PAPER 3 — Economy · Environment · Science

5. Emergency Gas Curbs Eased as LNG Shipments Normalise — Post-Hormuz Recovery

[TH] Page 1

GS 3: Economy: LNG; Hormuz aftermath; gas supply recovery; power sector; fertiliser supply.

‣ The Centre lifted the emergency curbs on non-domestic gas (LNG/RLNG — Regasified LNG) that had been imposed in April 2026 during the Hormuz crisis — supply has normalised as Qatari and Saudi LNG tankers have been crossing the Strait of Hormuz since the Muscat Accord (June 14/17).

‣ What the curbs were: Emergency directions under Essential Commodities Act (ECA) 1955 to gas distribution companies to prioritise: (1) household LPG supply; (2) CNG (compressed natural gas) for vehicles; (3) PNG (piped natural gas) for hospitals, households; over non-domestic users (glass, ceramic, steel, paper industries) and power generation.

‣ Recovery indicators: LNG spot prices fell from peak $18/MMBTU (May 2026) to $11-12/MMBTU (July 2026); Dahej LNG terminal (Gujarat) and Hazira LNG terminal (Gujarat) are both receiving regular tankers; Petronet LNG import volumes back to pre-crisis levels; Kochi and Dabhol terminals also seeing normalised cargoes.

‣ Economic impact of lifting curbs: Industrial users who had switched to coal (increasing pollution) or reduced capacity (economic loss) can resume full gas-based operations; gas-based power plants (discussed in July 2 notes — Grid India's monsoon strategy) can now operate at higher PLF; fertiliser plants can resume full LNG-to-urea operations.

- The Indian gas supply chain: India imports ~50% of its natural gas (as LNG); domestic production: mainly KG-D6 (Reliance-BP offshore Krishna-Godavari Basin), Cambay basin (ONGC), Rajasthan fields (Cairn-ONGC); total domestic production ~90 mmscmd (million metric standard cubic meters per day) vs. consumption ~175-180 mmscmd; the gap is filled by LNG imports (primarily from Qatar — Petronet LNG's long-term contract; and spot purchases from global markets including Australia, USA, Norway).

- OPEC+ additional output: OPEC+ (at its July 5 meeting) decided to accelerate oil production increases — planned to boost output by 548,000 barrels/day in August 2026 (ahead of schedule); this is partly in response to post-Hormuz economic recovery needs and partly driven by Saudi Arabia and UAE wanting to recapture market share lost to Russia and non-OPEC producers during the Hormuz crisis. India, as a major importer, benefits from OPEC+ supply increases → lower Brent crude prices → lower fuel prices.
- 📌 **Petronet LNG** — India's largest LNG importer; operates Dahej terminal (Gujarat, 22.5 MTPA capacity + planned expansion) and Kochi terminal (Kerala, 5 MTPA); has a long-term LNG supply contract with Qatar's QatarEnergy (25-year agreement, recently extended); key to India's post-Hormuz supply normalisation.

6. India Needs a Second Home for Asiatic Lions — The Case for Barda Sanctuary

[TH] Page Opinion

GS 3: Environment: Asiatic lion; Kuno National Park; Barda Wildlife Sanctuary; conservation; single-population risk.

‣ The Hindu opinion: India's entire population of wild Asiatic lions (~700) lives exclusively in the Gir Forest National Park and surrounding areas in Gujarat — making them the world's most concentrated single population of a large predator; this single-population concentration is an existential risk.
‣ The Kuno problem: Kuno-Palpur National Park (Madhya Pradesh) was identified 25+ years ago as the second home for Asiatic lions; the Supreme Court ordered (2013) that lions be translocated from Gir to Kuno; Gujarat has consistently resisted this translocation (citing conservation concerns and political reasons — lions are Gujarat's cultural identity); the lions at Kuno are now CHEETAHS (African-origin from Namibia, South Africa — UNDER Project Cheetah), not Asiatic lions; the SC order has been effectively ignored.
‣ The Barda proposal: Now, the article proposes Barda Wildlife Sanctuary (also in Gujarat, ~190 km from Gir near Porbandar-Rajkot district) as an alternative second home — still in Gujarat, which eliminates the state-level political objection; Barda has suitable habitat; could receive a founder population of 20-25 lions from Gir.
‣ Risk of single population: The Gir population's vulnerability: (1) disease — canine distemper wiped out 23 lions in 2018; if Gir is hit by a large epidemic, the species could face a severe decline from which recovery would be difficult; (2) natural disaster (flood, fire); (3) genetic inbreeding (despite ~700 animals, Gir's lions are genetically less diverse than African lions due to a historical population bottleneck of ~20 individuals in the early 20th century).

- The Gir lion success story: Asiatic lions were reduced to just 20 individuals in 1913; through conservation at Gir, they have recovered to ~700 today — one of India's most successful wildlife conservation stories; the population now exceeds Gir's carrying capacity (estimated 350-400 lions), causing human-lion conflict in surrounding areas; a second population would both reduce Gir's density and create a conservation buffer.
- Species distribution comparison: African lions exist across 26 countries in fragmented populations; Asiatic lions (a sub-species, Panthera leo persica) exist in just ONE location globally — a situation IUCN classifies as 'Critically Endangered' for population structure purposes; the Siberian tiger (historically similar single-population risk) was saved by creating multiple populations (Ussuri, Amur regions).
- Cheetah-Kuno context: The African cheetah reintroduction at Kuno (Project Cheetah, 2022) effectively 'occupied' the site that was supposed to receive Asiatic lions; the Cheetah project has faced challenges (multiple cheetah deaths); now Kuno cannot receive lions without rehoming the cheetahs; Barda's emergence as the alternative thus serves both the lion protection need and allows Kuno to focus on cheetah recovery.

UPSC ANGLE
• Wildlife Protection Act and lion translocation: SC order (2013) in Rahul alias Parveen Singh v. State of Gujarat directed the Centre to translocate some lions from Gir to Kuno; Gujarat has not complied; the article's Barda proposal may circumvent this SC order compliance issue by offering Gujarat an intra-state solution that Gujarat may accept.

• Project Lion (2020): India's dedicated conservation programme for Asiatic lions; Rs 2908 crore; focuses on habitat development, human-wildlife conflict mitigation, health management, and reintroduction; a second home creation is an explicit Project Lion objective.

- **Asiatic Lion (Panthera leo persica)** — Subspecies of lion; world's entire wild population (~700) lives exclusively in Gir Forest (Gujarat); IUCN status: Endangered; genetic bottleneck from 20 individuals (1913) means low genetic diversity; disease (canine distemper 2018) and natural disasters are existential single-population risks; Barda Wildlife Sanctuary proposed as second home.

7. The Real Crisis in India's Fisheries

[TH] Page Text and Context

GS 3: Economy: Fisheries; Blue Economy; PMMSY; overfishing; climate change impact on fisheries.

‣ India has 14.5 million fishers (one of the world's largest fishing communities) and a marine fishing production of ~4.2 million tonnes/year; it is the world's 3rd largest seafood producer; yet the sector faces multiple intersecting crises.
‣ The three crises: (1) Overfishing — most of India's major fishing zones (especially the Arabian Sea after the Hormuz disruption reduced shipping, paradoxically allowing more fishing) are at or beyond maximum sustainable yield; biomass of key commercial species (Bombay duck, Indian mackerel, prawns) has declined 20-40% since 2000; (2) Climate change — ocean warming has shifted fish migration patterns; monsoon intensification disrupts fishing seasons; cyclone frequency and intensity has increased; (3) Resource access competition — foreign trawlers (some operating illegally in India's EEZ) are competing with artisanal Indian fishers.
‣ PMMSY (Pradhan Mantri Matsya Sampada Yojana): Rs 20,050 crore scheme for fisheries development; targets: 220 lakh tonnes production by 2024-25 (missed); $1 billion seafood exports (growing toward this); deep sea fishing fleet development (India currently fishes mainly within 50 km of coast — vast deep sea resources unexploited).
‣ Post-Hormuz impact: The Arabian Sea saw REDUCED commercial shipping during the Hormuz crisis — but Gujarat/Maharashtra fishers could NOT fish safely in the northern Arabian Sea due to mine risks and naval operations near the Gulf; Lakshadweep and Kerala fishers who fish further south were less affected.

- The blue economy opportunity: India's Exclusive Economic Zone (EEZ) covers 2.37 million sq km — a vast ocean territory that is underutilised for fisheries, mineral extraction, offshore renewable energy, and aquaculture; blue economy GDP contribution is currently ~5.3% of India's total GVA (gross value added) — significantly below the potential; Sagarmala's Blue Economy component and the Deep Ocean Mission are intended to unlock this potential.
- Deep Ocean Mission: India's Rs 4,077 crore mission (2021-2026); three main objectives: deep sea mining exploration (polymetallic nodules from Central Indian Basin); biodiversity survey (deep sea flora and fauna); deep sea tourism and technology development; MATSYA 6000 (India's submersible for 6,000m depth) is the signature technology.
- **PMMSY (Pradhan Mantri Matsya Sampada Yojana)** — Rs 20,050 crore fisheries development scheme (2020-2025); targets: 220 lakh tonnes production + $1 billion seafood exports; covers marine + inland fisheries + aquaculture; kisan credit cards extended to fishers; deep sea fishing fleet development under this scheme.

8. Milk Production in Gangetic Plains Nosedives Due to Climate Change

[TH] Page Science

GS 3: Environment: Climate change; animal husbandry; heat stress in livestock; dairy sector; Gangetic plains.

‣ A new study published in Nature Climate Change: Milk production in India's Gangetic plains — the heartland of the dairy economy (UP, Bihar, West Bengal, Assam) — has declined 14-18% since 2000 due to heat stress in dairy cattle and buffaloes.

‣ The mechanism: As temperatures rise (Gangetic plains have warmed ~1.4°C since 1970), dairy cattle and buffaloes experience heat stress (above 27°C THI — Temperature-Humidity Index — is the critical threshold for cattle; India's Gangetic plains now exceed this for 150+ days/year vs. 60 days in 1970).
‣ Heat stress impact on cows: Reduces milk production (by 10-30% in extreme heat); reduces feed intake; reduces conception rates (fertility declines); increases disease susceptibility; reduces growth in calves; the TRIPLE combination of heat + humidity (high in Gangetic plains) is worse than dry heat alone.
‣ India's dairy context: India is the world's largest milk producer (239 million tonnes, FY25); the dairy sector employs 80 million+ people; annual milk production growth has slowed from ~5%/year (2000-2015) to ~2%/year (2015-2026) — the study attributes a significant portion of this slowdown to climate-driven heat stress.

- Solutions: Shade structures, cooled drinking water, ventilated barns (basic cooling for cattle reduces heat stress significantly); ICAR-NDRI (National Dairy Research Institute, Karnal) has developed 'climate-resilient' cattle breeds (Karan Fries, Karan Swiss — crossbreeds that combine European dairy genetics with tropical heat tolerance); cooling programmes through the dairy cooperative network (AMUL, NDDB) have been piloted.
- The Gangetic plains dairy-climate nexus: Gangetic plains agriculture faces 'triple climate stress' — erratic monsoon (reduced/late rainfall), heat stress (higher temperatures), and groundwater depletion (dairy farming also uses significant water); these three stresses interact to reduce agricultural AND dairy productivity simultaneously.
- **Temperature-Humidity Index (THI)** — A combined measure of temperature and humidity affecting livestock productivity; THI above 72 = mild heat stress; above 79 = moderate stress; above 88 = severe stress (mortality risk); Indian Gangetic plains now exceed the mild stress threshold for 150+ days/year (up from 60 days in 1970).

9. Synthetic Cell: The Machine That Could Reshape Biology

[TH] Page Science

GS 3: Science and Technology: Synthetic biology; minimal cell; JCVI synthetic cell; biotechnology; applications.

‣ The Hindu science feature: Scientists at JCVI (J. Craig Venter Institute) and collaborating institutions have developed a new generation of synthetic cells with a 'minimal genome' — the fewest number of genes required for a cell to live and reproduce.
‣ What is a synthetic cell: A living cell whose DNA has been entirely synthesised (not naturally occurring) and transplanted into a cell membrane shell; the cell can metabolise, grow, divide, and evolve — it is a genuine living system, not a simulation; it is not found anywhere in nature.
‣ The minimal genome cell (JCVI-syn3A): Contains only 473 genes (compared to 3,000+ genes in a typical bacterium and 20,000+ in a human cell); this 'stripped-down' cell reveals which genes are absolutely essential for life — providing insights into the fundamental nature of life itself.
‣ Applications: (1) Drug manufacturing — synthetic cells as living chemical factories, producing complex pharmaceuticals (insulin, antibodies) that are impossible to synthesise chemically; (2) Biosensors — cells engineered to detect specific chemicals (environmental monitoring, disease biomarkers); (3) Living materials — biological systems that can self-repair, self-replicate; (4) Biofuels; (5) Understanding origins of life — the minimal cell provides a model of what early life on Earth may have looked like.

- India's synthetic biology investment: DBT (Department of Biotechnology) and DST have funded synthetic biology research at IGIB (Institute of Genomics and Integrative Biology, Delhi), IISER-Pune, and NCBS Bengaluru; India's National Biotechnology Development Strategy (2021-2025) includes synthetic biology as a priority area; BIRAC funds synthetic biology startups.

UPSC ANGLE
• The ethical dimension: The ability to 'design' and create living cells raises profound ethical questions: Who owns a synthetic organism? Can synthetic cells escape labs and interact with natural ecosystems? Are there risks of engineered pathogens? The Cartagena Protocol on Biosafety (under the CBD — Convention on Biological

Diversity — to which India is a party) provides the international governance framework for 'living modified organisms,' which would include synthetic cells.

- **Synthetic Cell / Minimal Genome (JCVI-syn3A)** — A living cell with a fully synthesised genome (473 genes — the minimal required for life); developed by J. Craig Venter Institute; can metabolise, grow, divide; applications: drug manufacturing, biosensors, biofuels, origins-of-life research; raises biosafety and governance questions.

PRELIMS IN FOCUS

Teejan Bai + Pandavani — Complete Facts	Teejan Bai: Born 1956, Ganiyari village (near Bhilai), Durg district, Chhattisgarh; Pardhi community (denotified tribe, formerly notified as 'criminal tribe' under British-era Criminal Tribes Act 1871); died July 5, 2026, AIIMS Raipur (cardiac arrest). Awards: Padma Shri (1988) + Padma Bhushan (2003) + Padma Vibhushan (2019). Pandavani: Folk performance art of Chhattisgarh; narrates Mahabharata episodes; two styles: Vedamati (seated, classical) + Kapalik (standing, dramatic); associated with Pardhi and Dewar communities; Teejan Bai = first woman to perform Kapalik style. Her instrument: Tambura (one-stringed folk instrument, distinctive from classical tambura/tanpura). Global reach: Performed in USA, UK, France, Japan, Russia, Australia, Germany. Broader context: Chhattisgarh's folk arts include Pandavani, Nacha, Karma Nacha, Raut Nacha, Panthi. Criminal Tribes Act 1871: Repealed 1952 after independence; 'denotified tribes' (DNTs) are a distinct welfare category under MoSJE.
Odisha SIR Deletions + Electoral Roll Restoration	Odisha SIR exercise: May 30-June 28, 2026 (enumeration phase); draft roll published July 5, 2026. Deletions: 20.14 lakh (6% of pre-SIR 3.33 crore electorate); remaining: 3.13 crore. Breakdown: Deaths (8.32 lakh) + Shifted/absent (10.07 lakh) + Duplicates (1.58 lakh). Manipur: 1.6 lakh deleted (7.64% of pre-SIR electorate). EC: Appointed 10 senior IAS officers as Electoral Roll Observers for Odisha. Qualifying date: July 1, 2026. Restoration: Deleted voters can apply through Form 6 (fresh registration) or Form 8 (address update) — prescribed procedures; appeal window provided. SC ruling (May 27, 2026): EC cannot automatically delete voters; must follow notice + hearing + appeal; EC cannot adjudicate citizenship. Constitutional basis: Article 326 (universal adult suffrage) + Article 324 (EC's superintendence of elections).
Asiatic Lion + Gir + Barda + Kuno	Asiatic lion (Panthera leo persica): IUCN Endangered; world's entire wild population = ~700 individuals; exclusively in Gir Forest National Park + surroundings in Gujarat. Historical bottleneck: Reduced to ~20 individuals in 1913 → recovered through conservation. Gir ecosystem: Gir National Park + Gir Wildlife Sanctuary + Girnar WLS + Mitiyala WLS = Gir Conservation Area. SC order (2013): Directed translocation to Kuno-Palpur NP (MP) — Gujarat has not complied. Kuno-Palpur: Now houses African cheetahs (Project Cheetah, 2022). Barda Wildlife Sanctuary (proposed second home): Near Porbandar-Rajkot, Gujarat; ~190 km from Gir; still in Gujarat (removes political obstacle); suitable habitat; Project Lion (2020, Rs 2,908 crore) objective includes second home. Key risk: Canine distemper wiped out 23 lions in 2018; single population = single disease event risk. 2018 disease: First documented canine distemper in Asiatic lions.
Ethanol Blending Programme — Key Numbers	Programme: Ethanol Blended Petrol (EBP) Programme. Target: E20 by 2025-26 (20% ethanol blend with petrol). Current status: E14 national average (2025-26); progress from E6 (2020-21). Ethanol sources: Sugarcane (~90%) — molasses C-heavy/B-heavy, sugarcane juice; Grain-based (maize, rice, FCI surplus); Lignocellulosic (agricultural residue — pilot stage). Benefits: $5+ billion/year crude import substitution; Rs 90,000+ crore farmer payments (FY22-FY26); 35% CO emission reduction (E20 vs. neat petrol). Cost advantage: Rs 6-8/litre cheaper than petrol (on energy-equivalent basis). Mandate: Oil marketing companies (IOC, BPCL, HPCL) are mandated purchasers from distilleries. Decarbonisation advantage vs. EVs: Blending works immediately in existing vehicles without infrastructure changes (unlike EVs requiring charging or hydrogen requiring fuel cells). OPEC+ (July 5, 2026): Accelerated oil output increase (+548,000 bbl/day in August 2026) — benefits India as crude importer (lower Brent crude prices).

India's Fisheries + Deep Ocean Mission + PMMSY	India fisheries: World's 3rd largest seafood producer; 14.5 million fishers; marine production ~4.2 million tonnes/year. EEZ: 2.37 million sq km (one of Asia's largest). Three crises: Overfishing (species biomass -20-40% since 2000) + climate change (migration pattern shifts, cyclone intensity) + resource access competition. PMMSY (Pradhan Mantri Matsya Sampada Yojana): Rs 20,050 crore (2020-2025); targets 220 lakh tonnes + $1 billion exports; kisan credit cards for fishers. Deep Ocean Mission: Rs 4,077 crore; polymetallic nodule mining (Central Indian Basin); MATSYA 6000 submersible (6,000m depth); biodiversity survey. Blue economy: Currently ~5.3% of India's GVA; Sagarmala has a Blue Economy component. Post-Hormuz context: Arabian Sea fishing disrupted (mines + naval operations near Gulf during war).

MAPPING — PLACES IN NEWS

Place	Why in News / Key Facts
AIIMS Raipur, Chhattisgarh	Site of Teejan Bai's passing (July 5, 2026); AIIMS Raipur was established as part of the AIIMS network expansion (there are now 22 AIIMS institutes across India); her prolonged treatment here since May 27 and ultimate passing marks the end of a cultural era; Raipur is Chhattisgarh's capital.
Gir Forest National Park, Gujarat	World's only home of wild Asiatic lions (~700); in Saurashtra peninsula, Junagadh district; established as a National Park in 1965; also known for Maldharis (pastoral community living in the forest); the 2018 canine distemper outbreak killed 23 lions — underlying the single-population risk that drives the 'second home' debate.
Barda Wildlife Sanctuary, Gujarat	Proposed second home for Asiatic lions; near Porbandar-Rajkot area in Saurashtra, Gujarat; ~190 km from Gir; suitable habitat; the 'intra-Gujarat' solution to the Kuno-vs-Gujarat political impasse over lion translocation.
Guwahati, Assam	India hosted BRICS Heads of Anti-Drug Agencies meeting (July 6-7, 2026) — venue chosen for Assam's location at the intersection of Golden Crescent (via NE) and Golden Triangle (via Myanmar) drug trafficking routes; Guwahati is Assam's largest city and Northeast India's commercial hub.
Kochi, Kerala	India hosted BRICS Women Working Group meeting (July 6-7, 2026); Kochi is Kerala's commercial hub and home to India's largest port (JNPT is largest by volume; Kochi is major southern port); also home to INS Venduruthy (Southern Naval Command); major IT services sector.
Ganiyari, Durg, Chhattisgarh	Birthplace of Teejan Bai (1956); Durg district in Chhattisgarh; adjacent to Bhilai, where the famous Bhilai Steel Plant (SAIL) is located; the village is near the steel-town industrial belt but remained culturally rooted in Chhattisgarhi folk traditions; Teejan Bai's roots in this area shaped her Pandavani career.
Dahej LNG Terminal, Gujarat	India's largest LNG import terminal (Petronet LNG, 22.5 MTPA capacity); in Bharuch district, Gujarat; on the Gulf of Khambhat (Cambay); declared operational normalcy July 6 after post-Hormuz supply restoration; sister terminal: Hazira (also Gujarat); long-term Qatar LNG contract (QatarEnergy).
New York, USA	INS Sudarshini arrived for SAIL4TH 250 celebrations (US 250th Independence Day, July 4, 2026); LOKAYAN 2026 = India's participation in multinational sailing event; New York Harbour hosts the Statue of Liberty; the visit symbolises India-US naval goodwill at the historic 250th anniversary.