



JULY 2026

4 – 31
JULY 2026

PIB

MONTHLY COMPILATION

JULY 2026

4 – 31 JULY 2026

Consolidated from four PIB current-affairs digests, arranged in chronological order.



WEEK 1

4 – 10 JULY



WEEK 2

11 – 17 JULY



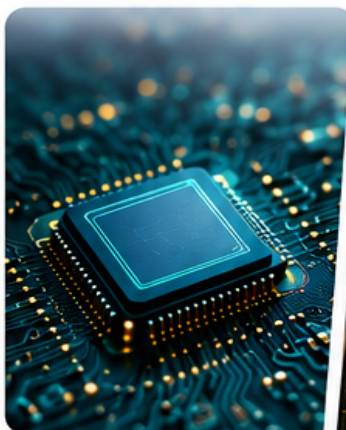
WEEK 3

18 – 24 JULY



WEEK 4

25 – 31 JULY



100+

GOVERNANCE,
POLICY &
INSTITUTIONS



DEFENCE,
SECURITY &
INTERNATIONAL
RELATIONS



ECONOMY,
TRADE &
INFRASTRUCTURE



SOCIAL SECTORS,
EDUCATION &
DEVELOPMENT



ENVIRONMENT,
SCIENCE &
TECHNOLOGY
& MORE

UPSC CSE 2027

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CG SEMI OSAT FACILITY — INDIA'S FIRST SEMICONDUCTOR ASSEMBLY & TEST PLANT GOES COMMERCIAL

Ministry: Ministry of Electronics & IT / India Semiconductor Mission

PIB Date: 4th July 2026

Easy Explanation

A semiconductor chip is everywhere – in your phone, your car, your washing machine, your hospital's MRI machine. India imports nearly all of them, spending billions of dollars of foreign exchange every year. Until now, India did not have a single facility that could even assemble or test chips made elsewhere, let alone fabricate them from scratch. That changed this week. PM Modi inaugurated the CG Semi Outsourced Semiconductor Assembly and Test (OSAT) facility in Sanand, Gujarat – India's first commercial semiconductor assembly and test plant. CG Semi is a joint venture between Renesas Electronics (Japan) and the Murugappa Group (India). The OSAT facility does not fabricate chips from raw silicon wafers – that requires an expensive 'fab' which India does not have yet. Instead, it takes chips that have been fabricated (in Taiwan, South Korea, or elsewhere), packages them into the casings you see on circuit boards, and tests them to make sure they work correctly. This is called ATMP – Assembly, Testing, Marking, and Packaging. It is a critical step in the semiconductor supply chain and a significant beginning for India's chip ecosystem. The ISM (India Semiconductor Mission) is pushing for multiple such facilities, with Tata Electronics' fab in Assam (which will actually fabricate chips from wafers) being the next landmark.

Key Terms:

Term	Definition
OSAT	Outsourced Semiconductor Assembly and Test – company that packages and tests chips after fabrication; CG Semi is India's first commercial OSAT
ATMP	Assembly, Testing, Marking, and Packaging – the process OSAT facilities perform; takes fabricated chips and readies them for use in products
India Semiconductor Mission (ISM)	Government mission under MeitY; Rs 76,000 crore outlay; supports fab, OSAT, and chip design in India
CG Semi	Joint venture: Renesas Electronics (Japan) + Murugappa Group (India); Sanand, Gujarat; India's first commercial OSAT facility
Renesas Electronics	Japanese semiconductor company; global leader in automotive and industrial chips; partner in CG Semi



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Fab (Fabrication Plant)	Where chips are made from silicon wafers; India does not have one yet; Tata Electronics (Assam) and Micron (Gujarat) are building India's first fabs
Semiconductor Supply Chain	Design (USA, UK) → Fabrication (TSMC Taiwan, Samsung Korea) → ATMP (OSAT) → End product; India now enters ATMP stage

Important Points for UPSC:

- CG Semi OSAT, Sanand, Gujarat: India's first commercial semiconductor assembly and test facility; joint venture of Renesas (Japan) and Murugappa Group (India)
- ISM (India Semiconductor Mission): Rs 76,000 crore outlay; three pillars – fabs (chip making), OSAT (packaging/testing), chip design; CG Semi is the first OSAT milestone
- OSAT vs Fab distinction: OSAT packages and tests chips already fabricated elsewhere; Fab makes chips from scratch (silicon wafer to chip); India's first fab (Tata Electronics, Assam + Micron, Gujarat) still being built
- Renesas significance: One of world's top 10 semiconductor companies by revenue; specialises in automotive chips (30%+ of cars' chips globally); CG Semi plugs India into this global supply chain
- Sanand, Gujarat: Already hosts Maruti, Tata Motors, Ford (formerly), Honda plants; semiconductor OSAT here directly feeds into automotive electronics supply chain nearby
- PM Modi speech: Referenced Digital India's 11-year journey (last week) as the foundation that made this semiconductor investment possible – demand creation before supply creation
- Import substitution: India spends \$25-30 billion annually on semiconductor imports; CG Semi alone will substitute a fraction, but signals that import substitution is now structurally possible
- ATMP sector: Global ATMP market is \$50 billion; India's target is to capture 10%+ over 10 years; OSAT is a labour-intensive, technically demanding sector – well-suited to India's strengths

VIKSIT UDAN — NEXT PHASE OF REGIONAL CONNECTIVITY SCHEME LAUNCHED

Ministry: Ministry of Civil Aviation

PIB Date: 4th July 2026

Easy Explanation

Most Indians who fly travel between a handful of large cities – Delhi, Mumbai, Bengaluru, Hyderabad, Chennai, Kolkata. But India has hundreds of towns with airports – or sites that could become airports –



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where there is no commercial flight service because airlines say it is not profitable enough. A person in Deoghar (Jharkhand), Shivamogga (Karnataka), or Balurghat (West Bengal) has to travel hours by road or train to the nearest large city just to catch a flight. UDAN – Ude Desh ka Aam Naagrik – was launched in 2016 with a simple idea: the government subsidises airlines to fly on underserved routes, making tickets affordable (capped at Rs 2,500 for one-hour flights originally) and making remote towns connected. Over four phases, UDAN has added 570+ routes connecting 88 underserved airports. But many routes did not survive after subsidies ended, airlines had viability issues on thin routes, and helicopter connectivity to hilly areas remained incomplete. Viksit UDAN – the next phase – was launched by PM Modi on 4th July with significant enhancements: a dedicated helicopter and seaplane connectivity component, a 'route revival' mechanism for routes that failed in earlier phases, and an extended viability gap funding period of 5 years (up from 3). The target: 120 new airports/airstrips to be operationalised by 2030.

Key Terms:

Term	Definition
UDAN	Ude Desh ka Aam Naagrik – Regional Connectivity Scheme; subsidises airlines on underserved routes; launched 2016 under MoCA
Viability Gap Funding (VGF)	Government subsidy to airlines operating on uneconomical routes; covers gap between cost and revenue; extended to 5 years in Viksit UDAN
Underserved Airport	Airport with fewer than 1 scheduled commercial flight per week; target of UDAN to activate these
Viksit UDAN	Next phase of UDAN; adds helicopter and seaplane routes, route revival mechanism, extended VGF, and 120 new airport target by 2030
AAI	Airports Authority of India – manages 137 airports; develops small airport infrastructure for UDAN routes
RCS (Regional Connectivity Scheme)	Official name for UDAN programme; notified by MoCA; funded by Centre, states, and airport operators jointly
Seaplane Operations	Connecting island territories, coastal towns, and riverine areas; Viksit UDAN has a dedicated seaplane component for Lakshadweep, Andamans, Goa backwaters

Important Points for UPSC:



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- UDAN launched 2016; completed 4 phases; 570+ routes; 88 airports connected; 1.5 crore+ passengers flown on UDAN routes cumulatively
- Viksit UDAN new features: (1) Helicopter + seaplane dedicated component; (2) Route revival for failed routes; (3) VGF extended to 5 years; (4) 120 new airports by 2030
- Problem Viksit UDAN solves: Many Phase 1-2 UDAN routes failed when VGF ended after 3 years – airlines withdrew; Viksit UDAN extends VGF and adds demand-building period
- Helicopter connectivity: North-East, Jammu & Kashmir, Uttarakhand, Himachal Pradesh – hilly states with no road connectivity to many towns; helicopters fill this gap
- Seaplane: India has 7,500+ km coastline, 1,382 islands; seaplane services connect island territories and coastal towns faster than boats; Lakshadweep and A&N priority destinations
- 120 airports by 2030: India currently has ~140 operational airports; adding 120 more in 4 years requires greenfield development + airstrip upgrades; ambitious but aligned with infrastructure push
- UDAN economics: Government VGF is shared 80:20 between Centre and State for most routes; states offer tax concessions; airlines guarantee minimum operations
- National Civil Aviation Policy 2016: UDAN is the implementation vehicle; target was air connectivity to every citizen – Viksit UDAN is the re-energised push toward this goal

INDIA-ISRAEL BILATERAL INVESTMENT AGREEMENT — IN FORCE

Ministry: Ministry of Finance / Department for Promotion of Industry and Internal Trade

PIB Date: 4th July 2026

Easy Explanation

When an Indian company invests in Israel or an Israeli company invests in India, they need legal certainty: that their investment will be protected, that they will not be arbitrarily nationalised or discriminated against, and that if a dispute arises, there is a fair mechanism to resolve it. Bilateral Investment Agreements (BIAs) provide exactly this framework – they are binding treaties between two countries that create rights and protections for investors. India's Bilateral Investment Agreement with Israel came into force on 4th July 2026. This is significant for two reasons. First, India-Israel economic ties have grown dramatically in the last decade – from \$1 billion to \$8 billion in annual bilateral trade – but investment flows have been limited by legal uncertainty. The BIA removes this barrier. Second, Israel is a global technology powerhouse – especially in cybersecurity, agri-tech, water technology, defence technology, and medical devices. Indian startups and companies wanting to access Israeli technology, and Israeli tech companies wanting to access India's 1.4 billion consumer market, now have a legally secure framework. The BIA follows India's Model BIA of 2016 – which replaced the older bilateral investment treaty (BIT) framework that India terminated in 2017 after losing



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several international arbitration cases. The new model BIA is more protective of India's sovereign regulatory rights while still guaranteeing investor protections.

Key Terms:

Term	Definition
BIA	Bilateral Investment Agreement – treaty between two countries protecting foreign investors; guarantees fair treatment, no arbitrary expropriation, dispute resolution
India Model BIA 2016	India's standard template for bilateral investment treaties; significantly revised after India lost investor-state arbitration cases; protects sovereign right to regulate
ISDS	Investor-State Dispute Settlement – mechanism in BIAs allowing investors to sue governments in international arbitration; India's 2016 model restricts ISDS access
India-Israel Bilateral Trade	Grew from ~\$1 billion (2000) to ~\$8 billion (2025); technology, diamonds, pharma, defence are key sectors; BIA aims to catalyse investment flows
Israel Tech Ecosystem	Tel Aviv is 'Silicon Wadi' – global hub for cybersecurity, agri-tech, water tech, medical devices; Israel has more NASDAQ-listed companies per capita than any country
BIT vs BIA	India replaced its old Bilateral Investment Treaties (BITs) with new Bilateral Investment Agreements (BIAs) from 2016; BIAs have stronger sovereign safeguards

Important Points for UPSC:

- India terminated ~70 BITs in 2017 after losing high-value arbitration cases (Vodafone, Cairn Energy etc.); replaced with new Model BIA 2016 framework – Israel BIA is under this new template
- Key sectors for India-Israel investment: Cybersecurity (Israel is world's 2nd largest exporter), agricultural technology (drip irrigation, precision farming), water desalination, defence, medical devices
- India-Israel defence dimension: India is the largest buyer of Israeli defence equipment globally (~\$2 billion annually); Barak missiles, Heron drones, Spyder systems; BIA strengthens the investment dimension





- BIA protections: Fair and equitable treatment; no arbitrary expropriation; most-favoured-nation treatment; national treatment; transparent dispute resolution through local courts first (ISDS only after 5 years)
- India's 2016 Model BIA changes: Removes 'umbrella clause'; requires exhaustion of local remedies for 5 years before ISDS; narrower definition of 'investment' (excludes portfolio investment); protects India's right to regulate for legitimate public policy goals
- Strategic context: India-Israel relations elevated to 'Comprehensive Partnership' in 2017; defence, technology, agriculture, water are pillars; BIA adds investment protection pillar
- Israel factor in Gaza conflict: India has maintained balanced position; BIA entering into force signals economic relationship continues independent of geopolitical tensions

PM MODI INDONESIA STATE VISIT — BINTANG ADIPURNA, PARLIAMENT ADDRESS, IIM BANGALORE

Ministry: Prime Minister's Office / Ministry of External Affairs

PIB Date: 7th July 2026

Easy Explanation

Indonesia is the world's largest Muslim-majority country, the 4th most populous nation (280 million people), a G20 member, and the largest economy in Southeast Asia. India and Indonesia share a civilisational bond going back 2,000 years — Hindu and Buddhist kingdoms ruled much of Southeast Asia, and the names of Indonesian cities, mythology, and culture are deeply intertwined with India's. PM Modi's state visit to Jakarta on July 7 produced an India-Indonesia Joint Statement covering defence, maritime security, digital connectivity, trade, and people-to-people ties. The most symbolically rich moment: President Prabowo Subianto conferred the Bintang Adipurna (Order of the Star of Magnificent Splendour) — Indonesia's highest civilian award — on PM Modi. Modi also became only the 2nd foreign leader in Indonesian history to address its Parliament (DPR/MPR), joining a select group that includes Nelson Mandela and Barack Obama. The announcement that IIM Bangalore will establish a campus in Indonesia — the first overseas campus of any Indian management institution — was particularly significant. Indonesia has 270+ million people, a rapidly growing middle class, and a shortage of quality management education. IIM Bangalore's presence there serves Indian soft power while meeting genuine Indonesian demand.

Key Terms:

Term	Definition
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Bintang Adipurna	Indonesia's highest civilian award – Order of the Star of Magnificent Splendour; conferred on PM Modi by President Prabowo Subianto on July 7
DPR/MPR	Dewan Perwakilan Rakyat / Majelis Permusyawaratan Rakyat – Indonesia's Parliament; PM Modi addressed it; only 2nd foreign leader to do so
IIM Bangalore Overseas Campus	First overseas campus of any Indian management institution; to be established in Indonesia; serves ASEAN region students
ASEAN-India Relations	India's 'Act East' policy focuses on ASEAN; Indonesia is ASEAN's largest economy; India-ASEAN trade target \$200 billion by 2030
India-Indonesia Joint Defence Committee (JDCC)	2nd JDCC meeting; agreement to expand bilateral defence partnership including defence manufacturing and technology transfers
Civilisational Ties	Hindu-Buddhist kingdoms (Majapahit, Srivijaya) in Indonesia; Ramayana and Mahabharata are part of Indonesian culture; Bali is Hindu-majority; 2,000-year-old connection
Garuda Shakti	India-Indonesia joint military exercise; one of the markers of growing defence ties

Important Points for UPSC:

- Bintang Adipurna: Indonesia's highest civilian award; PM Modi is among a very small group of foreign leaders to receive it; previous Indian recipients include Nehru
- Parliament address: PM Modi addressed Indonesia's DPR/MPR – only 2nd foreign leader in history to do so (after Barack Obama); speech focused on India-Indonesia civilisational bond and future cooperation
- IIM Bangalore overseas campus: First time any IIM or IIT will establish a campus abroad; Indonesia chosen for ASEAN strategic importance, large middle class, PM Modi's announcement made at India-Indonesia Business Forum
- India-Indonesia trade: \$38 billion (2024-25); target \$100 billion by 2030; key exports from India: pharma, machinery, cotton; key imports from Indonesia: palm oil, coal, rubber
- Defence JDCC outcomes: Defence manufacturing MoU; technology transfer for patrol vessels; expanded joint exercises (Garuda Shakti on land, Samudra Shakti at sea)





- Maritime dimension: Both India and Indonesia are maritime nations; Indonesia controls Malacca Strait (through which 30%+ of global trade passes); joint maritime domain awareness cooperation signed
- Indonesia's strategic importance: ASEAN Chair in 2023; world's largest nickel reserves (critical mineral for EV batteries); India's copper-chlorine nuclear hydrogen program connects to critical mineral supply
- Act East Policy: India's engagement with ASEAN/East Asia; Indonesia visit is the centrepiece of Modi's three-nation tour (Indonesia, Australia, New Zealand)

INDIA-AUSTRALIA 3RD ANNUAL SUMMIT — PACTS, DEFENCE DECLARATION, CSIR-TKDL

Ministry: Prime Minister's Office / Ministry of External Affairs

PIB Date: 9th July 2026

Easy Explanation

India and Australia have had a remarkable diplomatic acceleration in the last five years. What was once a distant, transactional relationship — India bought wool from Australia and sent students there — has become a 'Comprehensive Strategic Partnership' with defence cooperation, critical minerals, technology, clean energy, and now a formal annual summit. The 3rd India-Australia Annual Summit in Canberra on July 9 produced three headline agreements. First: PACTS — Australia-India Partnership on Cyber, Critical Technologies and Supply Chains. This is a landmark agreement covering cybersecurity cooperation (joint exercises, threat intelligence sharing, protection of critical infrastructure), critical technologies (AI, quantum, semiconductors), and supply chains (reducing dependence on single-source suppliers, especially China, for key materials). Second: India-Australia Joint Declaration on Defence and Security Cooperation — elevating defence ties with commitments on joint exercises, maritime domain awareness, and logistics support arrangements (allowing each other's military to use ports and bases for refuelling). Third: A specific agreement on access to CSIR-TKDL (Traditional Knowledge Digital Library) — Australia will use India's database of traditional medicine and plant knowledge to prevent bio-piracy and invalid patent applications in Australia. Alongside, PM Modi attended Melbourne Cricket Ground — a deeply symbolic gesture given cricket's role as a cultural bridge between the two nations.

Key Terms:

Term	Definition
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PACTS	Australia-India Partnership on Cyber, Critical Technologies and Supply Chains; covers cybersecurity, AI, quantum, semiconductor, critical minerals supply chains
Comprehensive Strategic Partnership	India-Australia's highest bilateral designation; upgraded from 'Strategic Partnership' in 2020; annual summit mechanism from 2023
CSIR-TKDL	Traditional Knowledge Digital Library – CSIR database of 3.6 lakh+ traditional medicine formulations in 5 languages; prevents bio-piracy and invalid patents globally
Bio-piracy	Patenting of traditional knowledge (medicinal plants, farming practices) by foreign entities without benefit-sharing with originating communities; TKDL prevents this
India-Australia ECTA	Economic Cooperation and Trade Agreement – signed 2022; first bilateral FTA India signed in a decade; tariff reduction on goods, services, investment
Quad	Quadrilateral Security Dialogue – India, USA, Australia, Japan; PACTS complements Quad's technology and security dimensions bilaterally
Logistics Support Arrangement	Defence agreement allowing one country's military to use the other's ports/bases for refuelling, supplies, maintenance – signed in India-Australia defence declaration

Important Points for UPSC:

- 3rd India-Australia Annual Summit: First was 2023 (virtual), 2nd was 2024 (New Delhi), 3rd is 2026 (Canberra) – Modi attending physically signals the relationship's priority
- PACTS specifics: Cyber threat intelligence sharing; joint cyber exercises; critical technology R&D (AI safety, quantum computing); supply chain mapping for critical minerals (lithium, cobalt – Australia has world's largest reserves)
- Australia critical minerals: World's largest lithium reserves; 2nd largest cobalt; large copper, nickel, rare earth deposits; PACTS ensures India gets preferred access in return for technology and services
- CSIR-TKDL agreement: 3.6 lakh traditional medicine formulations digitised in English, German, French, Japanese, Spanish; Patent offices worldwide use it to reject invalid patents; Australia's IP office will now formally use TKDL





- TKDL success story: Prevented 2,000+ invalid patent applications globally since 2009 – turmeric, neem, yoga postures, Ayurvedic formulations saved from bio-piracy
- Defence declaration: Mutual Logistics Support Agreement (MLSA) pathway; joint maritime patrols in Indian Ocean and Indo-Pacific; expanded Malabar exercise participation (India-US-Japan-Australia)
- India-Australia ECTA: Signed April 2022, in force since late 2022; tariffs on 85%+ of Indian goods to Australia eliminated; beneficiaries: textiles, pharma, gems, jewellery, leather
- MCG visit: PM Modi at Melbourne Cricket Ground with PM Albanese – cricket diplomacy; India is Australia's largest cricket tourism market; symbolic of people-to-people dimension

INS MAHENDRAGIRI – 6TH PROJECT 17A STEALTH FRIGATE TO BE COMMISSIONED

Ministry: Ministry of Defence / Indian Navy / Mazagon Dock Shipbuilders

PIB Date: 6th & 10th July 2026

Easy Explanation

We covered the commissioning of INS Dunagiri (Project 17A frigate #5) in Week 4. This week, the Indian Navy announced the upcoming commissioning of INS Mahendragiri – the 6th and penultimate ship of the Project 17A programme – into the Eastern Fleet. The Mahendragiri is being built at Mazagon Dock Shipbuilders (MDL) in Mumbai, unlike Dunagiri which was built at GRSE Kolkata – Project 17A is split between the two shipyards. INS Mahendragiri is named after the highest peak of the Eastern Ghats mountain range in Odisha – a naming pattern that honours India's geography. The Eastern Fleet is headquartered at Visakhapatnam and is responsible for the Bay of Bengal, Andaman Sea, and broader western Pacific approaches – areas of increasing strategic interest given China's growing naval presence. Project 17A ships are guided-missile frigates with enhanced stealth features (radar-absorbing materials, reduced radar cross-section hull design, infrared suppression), advanced sensors, and the ability to carry BrahMos supersonic missiles and anti-submarine helicopters. Each ship can conduct offensive strikes, air defence, and submarine hunting simultaneously – a true multi-role warship. India's plan is to commission all 7 Project 17A ships by 2027-28, completing the most ambitious indigenous naval shipbuilding programme in the country's history.

Key Terms:

Term	Definition
Project 17A	Programme of 7 advanced stealth frigates; 4 built at MDL Mumbai, 3 at GRSE Kolkata; successor to Shivalik-class (Project 17)



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INS Mahendragiri	6th Project 17A stealth frigate; built at MDL Mumbai; to be commissioned into Eastern Fleet at Visakhapatnam; named after Eastern Ghats peak in Odisha
Eastern Fleet	Indian Navy's principal striking force in the Bay of Bengal; headquartered at Visakhapatnam (HQENC); covers Bay of Bengal, Andaman Sea, and approaches
MDL	Mazagon Dock Shipbuilders, Mumbai – India's premier naval shipbuilder; Defence PSU; building 4 of 7 Project 17A frigates including Mahendragiri
Stealth Features	Project 17A has: integrated mast (reduces radar signatures), X-shaped superstructure (deflects radar), IR suppression exhaust systems, anechoic tiles on hull
BrahMos Missile	Supersonic cruise missile (Mach 2.8); range 450 km; carried on Project 17A; India-Russia joint venture; most advanced anti-ship missile in India's arsenal
Project 17A vs Shivalik	Shivalik class (Project 17): 3 frigates, 2010-2012; Project 17A: 7 frigates, more stealth, better sensors, BrahMos-equipped; significant capability jump

Important Points for UPSC:

- Project 17A status: INS Nilgiri (1st, commissioned Jan 2025), INS Himgiri (2nd), INS Udaygiri (3rd), INS Dunagiri (5th, June 2026), INS Mahendragiri (6th, July 2026); 7th (INS Vindhyagiri) follows
- MDL vs GRSE split: 4 ships at MDL Mumbai (Nilgiri, Himgiri, Udaygiri, Mahendragiri); 3 ships at GRSE Kolkata (Dunagiri, Taragiri, Vindhyagiri) – distributes shipbuilding capacity and expertise
- Eastern Fleet significance: Bay of Bengal is strategically contested – China's PLA Navy exercises here, Myanmar is a China-aligned naval base; India's Eastern Fleet must counter this
- Naming convention: Project 17A ships named after mountain ranges/peaks – Nilgiri (Western Ghats), Himgiri (Himalayas), Udaygiri (Odisha), Dunagiri (Uttarakhand), Mahendragiri (Eastern Ghats peak in Odisha)
- Stealth frigate capability: Displacement ~ 6,670 tonnes; 15 officers, 220 sailors; 32 BrahMos VLS cells; Barak-8 SAM for air defence; HUMSA-NG sonar for anti-submarine; helo deck for 2 helicopters
- Indigenous content: 75%+ domestic content; over 100 Indian MSMEs supplied components; Steel, electronics, weapon systems largely indigenous – a true Atmanirbhar warship





- 2027-28 target: All 7 Project 17A ships commissioned by then; combined firepower will represent the most capable surface fleet India has ever operated

DRDO PINAKA LONG RANGE GUIDED ROCKET — SUCCESSFUL FLIGHT TEST

Ministry: Ministry of Defence / DRDO / DRDL

PIB Date: 8th July 2026

Easy Explanation

In a war, you need to hit targets that are far away — a supply depot, a command post, an artillery battery — without sending soldiers into harm's way. Artillery rockets do this. India's Pinaka Multiple Launch Rocket System (MLRS) has been one of DRDO's greatest indigenous success stories — a truck-mounted rocket launcher that can fire 12 rockets in 44 seconds, saturating a target area with devastating effect. Pinaka has already been exported to Armenia and is under consideration by several other countries. But the original Pinaka had a limitation: its rockets were unguided, meaning they followed a ballistic arc and hit within a large impact area rather than a precise point. This was fine for hitting large enemy formations but not accurate enough for precision strikes on specific targets (a radar station, a vehicle, a bridge). The Pinaka Long Range Guided Rocket (LRGR) changes this. The LRGR uses a navigation system combining GPS, NAVIC (India's own satellite navigation), and inertial navigation to guide the rocket to a precise target up to 90 km away — with an accuracy of under 10 metres. The test on July 8 was fully successful. This makes Pinaka LRGR one of the most accurate and longest-range guided artillery rockets in any army's arsenal, comparable to the US Army's GMLRS (Guided Multiple Launch Rocket System).

Key Terms:

Term	Definition
Pinaka MLRS	Pinaka Multiple Launch Rocket System — India's indigenous truck-mounted artillery rocket launcher; fires 12 rockets in 44 seconds; developed by DRDO (ARDE Pune)
LRGR	Long Range Guided Rocket — guided version of Pinaka; range 90 km; accuracy <10 metres CEP; GPS+NavIC+INS navigation
CEP	Circular Error Probable — measure of accuracy; 10m CEP means 50% of rockets hit within 10m of target; LRGR has very high accuracy for an artillery rocket



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NavIC	Navigation with Indian Constellation – India's own GPS equivalent; 7-satellite constellation; provides India navigation independence from US GPS in conflict
ARDE	Armaments Research and Development Establishment, Pune – DRDO lab that developed Pinaka system; part of the larger Pinaka development consortium
GMLRS	Guided Multiple Launch Rocket System – US Army's precision guided rocket; range 70-150 km; Pinaka LRGR is India's equivalent capability
Pinaka exports	Armenia purchased Pinaka MLRS; France, USA evaluating for NATO; 3-4 other countries in advanced discussions – India's first major indigenously developed artillery export

Important Points for UPSC:

- Pinaka history: Developed after 1999 Kargil War (when artillery limitations were exposed); inducted into Indian Army 2000; Pinaka Mk-I (40 km) → Mk-I Enhanced (60 km) → LRGR (90 km) – progressive range increase
- LRGR test details: Fired from DRDO's Integrated Test Range at Chandipur, Odisha; hit target at 90 km with sub-10m CEP; all mission parameters met
- NavIC integration: Using India's own satellite navigation reduces vulnerability – in a conflict, adversary could jam or disable GPS; NavIC is India-controlled and cannot be externally denied
- Comparison: US GMLRS (range 70 km standard, 150 km extended range); LRGR at 90 km exceeds standard GMLRS and closes gap with extended-range version
- Artillery transformation: Modern warfare is 'deep strike' – hitting logistics, command, and supply targets far behind enemy lines; Pinaka LRGR enables this for the Indian Army at low cost vs ballistic missiles
- Export potential: Armenia buying Pinaka has given India's export credibility; LRGR's precision makes it marketable to many countries that need affordable precision strike rockets
- Pinaka vs BrahMos: BrahMos is a cruise missile (~Rs 3-5 crore per unit); LRGR is a guided rocket (~Rs 50-70 lakh per unit); for saturation fires, LRGR is far more cost-effective
- DRDO lab: Armaments Research & Development Establishment (ARDE), Pune – nodal lab; supported by High Energy Materials Research Laboratory (HEMRL) for propellants





KAMARAJAR PORT — INDIA'S 2ND MAJOR PORT WITH 18-METRE DRAFT CAPABILITY

Ministry: Ministry of Ports, Shipping and Waterways

PIB Date: 7th July 2026

Easy Explanation

Draft is the depth of water a ship needs to float safely. A large container ship or Very Large Crude Carrier (VLCC) may need 18-21 metres of water under its keel to navigate without running aground. Most Indian ports are too shallow for these largest vessels — they have to be serviced by smaller feeder ships that transfer cargo from larger ships anchored offshore (called ship-to-ship transfer or transshipment). This means India effectively pays a transshipment penalty — cargo takes longer and costs more because it must be handled twice. The Jawaharlal Nehru Port (JNPA, Mumbai) has 18-metre draft capability, making it India's deepest major port. This week, Kamarajar Port (formerly Ennore Port) near Chennai became India's second major port to achieve 18-metre draft capability — after completing dredging and expansion work. This means the largest container ships and tankers that currently have to transship through Colombo or Singapore can now come directly to Kamarajar. This reduces costs, improves turnaround time, and helps India capture transshipment business it is currently losing to neighbouring ports. India's maritime ambition is to be among the world's top 10 ports by volume — 18-metre draft capability at more ports is a prerequisite.

Key Terms:

Term	Definition
Draft (Nautical)	Depth of water a ship needs below its keel to navigate safely; larger ships need deeper draft; 18 metres is required for largest container ships and VLCCs
Kamarajar Port	Formerly Ennore Port; Chennai, Tamil Nadu; now India's 2nd major port with 18-metre draft; handles coal, ore, containers, LNG, vehicles
JNPA	Jawaharlal Nehru Port Authority (Navi Mumbai) — India's largest container port; first to achieve 18-metre draft; handles 6 million TEUs annually
Transshipment	When cargo is transferred from a large ship to a smaller feeder ship (or vice versa) at an intermediate port because the destination port is too shallow for the large ship



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Colombo Transshipment Hub	Sri Lanka's Colombo Port is a major transshipment hub for South Asian cargo; much of India's transshipment goes through Colombo – representing lost revenue for India
TEU	Twenty-foot Equivalent Unit – standard container size; 1 TEU = one 20-foot container; used to measure port capacity
Major Port	12 major ports under Central Government (Major Port Authorities Act 2021); handle ~65% of India's maritime trade by volume

Important Points for UPSC:

- India's 12 major ports: Deendayal (Kandla), Mumbai, JNPA, Mormugao, New Mangalore, Cochin, Chennai, Kamarajar, VOC (Tuticorin), Visakhapatnam, Paradip, Kolkata/Haldia
- 18-metre draft club: JNPA (Mumbai) was first; Kamarajar (Ennore) is second; remaining major ports range from 11-16 metres – limiting vessel size
- Colombo transshipment loss: India loses ~\$0.5-1 billion annually in transshipment revenue to Colombo because Indian ports are too shallow for largest ships; Colombo handles 70%+ of South Asian transshipment
- Kamarajar Port strategic importance: Located near Chennai, Tamil Nadu; handles thermal coal for power plants (40%+ of throughput), vehicle exports (India's largest car-exporting port), LNG for South India
- VOC Port comparison: Last week's brief covered VOC Port's 45% carbon emission reduction (green port); Kamarajar this week adds draft capacity – two different dimensions of port modernisation
- Maritime India Vision 2030: Targets making Indian ports competitive with Singapore, Colombo, Dubai; 18-metre draft at multiple ports is a specific milestone in MIV 2030
- Dredging capacity: India's dredging fleet has expanded significantly – Dredging Corporation of India (DCI) and private dredgers handling major port deepening projects
- Future ports: Vadhavan Greenfield Port (Maharashtra) under development – designed for 18+ metre draft from ground up; will be India's largest port when complete

NARMADA AWARD PAYMENT SETTLEMENT — HISTORIC INTER-STATE AGREEMENT

Ministry: Ministry of Home Affairs / Ministry of Jal Shakti

PIB Date: 7th July 2026



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Easy Explanation

The Narmada river flows 1,312 km from Madhya Pradesh through Maharashtra, then forms the border between MP and Gujarat before entering the Arabian Sea. The Narmada Water Disputes Tribunal (NWDT) Award of 1979 divided the river's waters among four states: MP (18.25 MAF), Gujarat (9 MAF), Maharashtra (0.25 MAF), and Rajasthan (0.5 MAF). It also required financially stronger states to compensate others for various costs and benefits. However, for decades, the payment obligations – especially between Gujarat, Maharashtra, MP, and Rajasthan – remained partly unsettled, leading to disputes about costs for land acquisition, rehabilitation of displaced persons, and construction contributions. On July 7, in the presence of Home Minister Amit Shah, the governments of Maharashtra, Gujarat, and other Narmada Award beneficiary states signed an agreement settling all pending payment issues. This is significant because disputes about Narmada obligations had become entangled with larger political tensions between the states. The settlement clears the path for smoother implementation of remaining Sardar Sarovar and other Narmada basin projects, and ensures rehabilitation and resettlement obligations for displaced communities – lakhs of people who lost land to the Sardar Sarovar Dam – are fully funded.

Key Terms:

Term	Definition
Narmada Water Disputes Tribunal (NWDT)	Established 1969 under Inter-State River Water Disputes Act 1956; gave final Award in 1979; allocated Narmada waters among MP, Gujarat, Maharashtra, Rajasthan
Sardar Sarovar Dam	Largest dam on Narmada; 138.68 m height; 30 radial gates; 1,450 MW power; reservoir stretching 214 km; key project under NWDT Award
MAF	Million Acre Feet – unit of water volume used in river awards; 1 MAF = ~1.2 billion cubic metres; MP gets largest share (18.25 MAF) of Narmada
Narmada Bachao Andolan (NBA)	Social movement led by Medha Patkar opposing Sardar Sarovar Dam; raised displacement and rehabilitation issues; case reached Supreme Court
R&R (Rehabilitation & Resettlement)	Obligations under NWDT Award to rehabilitate displaced persons; estimated 40,000-1,00,000 families displaced by Sardar Sarovar; R&R costs were part of settlement





Inter-State River Water Disputes Act 1956

Law under which tribunals like NWDT are constituted; Article 262 of Constitution empowers Parliament to exclude Supreme Court jurisdiction over inter-state water disputes

Important Points for UPSC:

- NWDT Award 1979 allocation: MP 18.25 MAF, Gujarat 9 MAF, Rajasthan 0.5 MAF, Maharashtra 0.25 MAF; total Narmada annual flow ~28 MAF in average year
- Sardar Sarovar Dam: Height 138.68 m; one of world's largest gravity dams; 1,450 MW installed capacity; Narmada Main Canal irrigates 18.45 lakh hectares in Gujarat and Rajasthan
- Payment dispute: Gujarat and MP had pending financial obligations to each other for land, rehabilitation, and power generation costs; Maharashtra had separate R&R payment obligations; settlement resolves all
- Displacement context: Sardar Sarovar submerged ~37,000 hectares; displaced approximately 40,000 families; R&R was the central demand of Narmada Bachao Andolan led by Medha Patkar
- HM Shah's pattern: Same facilitation role as Kishau Dam (Week 3) and Rajasthan-Haryana Yamuna (Week 5) – Amit Shah is systematically resolving longstanding inter-state water disputes
- Political significance: Gujarat (BJP), MP (BJP), Maharashtra (Mahayuti - BJP led) – BJP state governments settling BJP-era disputes; cooperative federalism with aligned governments
- Article 262: Empowers Parliament to adjudicate inter-state water disputes; excludes Supreme Court jurisdiction (an exception to SC's general jurisdiction) – understanding this Article is critical for UPSC

TReDS MANDATORY FOR CPSEs — MSME INVOICE SETTLEMENT REFORM

Ministry: Ministry of MSME / Ministry of Finance

PIB Date: 10th July 2026

Easy Explanation

MSMEs — small businesses — have a chronic cash flow problem. When they supply goods or services to a large government company (a Central Public Sector Enterprise, or CPSE), they raise an invoice but typically wait 45-90 days to be paid. During this wait, they still have to pay their workers, buy raw materials for the next order, and service their own loans. This cash crunch kills many small businesses — not because they don't have orders, but because they can't survive the wait between delivering work and getting paid. TReDS — Trade Receivables Discounting System — is the solution India built for this. TReDS is an RBI-regulated digital platform where an MSME can upload its unpaid invoice from a large company, and a bank or NBFC



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instantly pays 90-95% of the invoice value to the MSME (at a small discount – essentially the interest for advancing the payment). The large company (buyer) then pays the full invoice to the bank at the original due date. The MSME gets cash now; the bank earns interest; the large company pays at the same schedule it always planned to. The government this week mandated that all Central Public Sector Enterprises (CPSEs) – over 300 government companies – must route all their MSME invoice settlements through TReDS. This removes the single largest source of MSME cash flow delays from the biggest institutional buyer pool.

Key Terms:

Term	Definition
TReDS	Trade Receivables Discounting System – RBI-regulated digital platform where MSMEs convert unpaid invoices to instant cash via bank/NBFC discounting
Invoice Discounting	Practice of selling an unpaid invoice to a financier at a discount in exchange for immediate cash; TReDS digitises and formalises this
CPSE	Central Public Sector Enterprise – government-owned companies (ONGC, BHEL, HAL, SAIL etc.); over 300 CPSEs; now mandated to use TReDS for MSME payments
MSME Development Act 2006	Requires buyers to pay MSMEs within 45 days; non-payment beyond 45 days attracts compound interest at 3x bank rate – but rarely enforced before TReDS
SAMADHAAN Portal	Ministry of MSME's delayed payment portal; MSMEs file complaints about delayed payments; TReDS mandate reduces need for SAMADHAAN complaints
Factoring Regulation Act 2011	Legal framework for invoice discounting; amended in 2021 to include TReDS platforms as 'factors'; gives TReDS statutory backing

Important Points for UPSC:

- TReDS platforms: Three RBI-licensed TReDS platforms – RXIL (NSE + SIDBI JV), M1xchange (Mynd Solutions), and Invoicemart (Axis Bank + mjunction); government mandating CPSEs to list on all three
- TReDS impact so far: Rs 2 lakh crore+ in invoices discounted since launch; 1 lakh+ MSME beneficiaries; average wait reduced from 60-90 days to 1-2 days for MSME payment
- CPSE mandate significance: 300+ CPSEs are among India's largest buyers of MSME-produced goods and services; making all their MSME payments go through TReDS is a systemic intervention





- MSME Act Section 16: Buyers must pay MSMEs within 45 days; failure attracts compound interest at 3x RBI rate; TReDS mandate makes this enforceable digitally
- SAMADHAAN portal: MSMEs file delayed payment complaints; 92,000+ applications filed; Rs 19,000+ crore recovered; TReDS mandate will reduce future filings by preventing delays
- Interest benefit: TReDS interest rate for MSME invoice discounting is typically 7-9% p.a.; much lower than MSME working capital loans (12-18%); MSMEs save significantly on financing cost
- Global context: Supply chain finance (like TReDS) is a global mechanism; India's TReDS is among the world's few government-mandated, RBI-regulated invoice discounting ecosystems – a genuine DPI innovation

VB-G RAM G FIRST INSTALMENT — Rs 25,863 CRORE RELEASED TO STATES

Ministry: Ministry of Rural Development

PIB Date: 5th July 2026

Easy Explanation

The Viksit Bharat - Grameen Rozgar Maha Guarantee (VB-G RAM G) Act came into force on July 1, 2026 (covered in last week's brief). This week, just 4 days later, Rural Development Minister Shivraj Singh Chouhan released the first instalment of funds under the new act – Rs 25,863 crore to states. This is significant for two reasons. First, it shows the government moving quickly to back the new legislation with actual money – often in India, new laws come into force but funds are slow to reach states. Second, the quantum is substantial – Rs 25,863 crore in a single first instalment, compared to MGNREGA's annual budget of Rs 73,000-80,000 crore, suggests the pace of disbursement is being accelerated. The funds will be used to pay workers who demand work under the VB-G RAM G scheme, to create rural assets (roads, ponds, check dams, farm bunds), and to fund the new features like skill development linkages and the AI-enabled audit portal. The release also comes with directions to states to ensure wage payments happen within 15 days of work completion – the new act's key improvement over MGNREGA's notorious delayed payments.

Key Terms:

Term	Definition
VB-G RAM G Act	Viksit Bharat – Grameen Rozgar Maha Guarantee Act 2025; in force July 1, 2026; replaces MGNREGA; enhanced rural employment guarantee



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Centre-State funding ratio	MGNREGA was 100% Centre-funded for wages; VB-G RAM G maintains this for wages; state share for administrative costs remains similar
Rs 25,863 crore instalment	First fund release under VB-G RAM G Act; released by Shivraj Singh Chouhan (Rural Development Minister) to all states within 4 days of Act coming into force
Wage payment within 15 days	New Act mandates wages within 15 days of work completion; compared to MGNREGA's frequent 30-90 day delays; AI portal monitors and flags violations
Kharif season alignment	First instalment released at start of kharif sowing season (July); ensures workers have income guarantee during agricultural lean period before kharif harvest (October)
Shivraj Singh Chouhan	Union Rural Development Minister; also Agriculture Minister; central figure in rural welfare announcements this week

Important Points for UPSC:

- Timing significance: Released July 5 – just 4 days after VB-G RAM G came into force July 1; signals administrative readiness and political will to back legislation with immediate resources
- Rs 25,863 crore first instalment: Largest single first instalment in rural employment guarantee history; previous MGNREGA first releases were typically Rs 10,000-15,000 crore
- Kharif season context: July-September is when agricultural labourers most need income support – crops sown but harvest months away; VB-G RAM G acts as a safety net during this period
- State-wise allocation: Based on SECC 2011 data of rural poor households, previous year utilisation, and state's rural population; states with highest poverty and utilisation get largest shares
- 15-day payment mandate: Key VB-G RAM G improvement; AI-based Rural Internal Audit Portal flags any state that fails to pay workers within 15 days; Centre can withhold future instalments for defaulting states
- Asset creation targets: VB-G RAM G funds must create durable assets – every village must have a gram panchayat-level asset plan; AI portal monitors asset quality post-creation
- Comparison: MGNREGA annual budget FY2024-25 was Rs 86,000 crore; VB-G RAM G target is Rs 90,000+ crore annually; increase reflects expanded scope (skill development, 150-day provision for differently-abled)





MIZORAM NATURAL HISTORY MUSEUM — INDIA'S 21ST DESIGNATED REPOSITORY UNDER BIOLOGICAL DIVERSITY ACT

Ministry: Ministry of Environment, Forest and Climate Change / National Biodiversity Authority

PIB Date: 7th July 2026

Easy Explanation

Biodiversity is not just plants and animals alive in forests — it is also the specimens preserved in museums, the seeds stored in gene banks, and the tissue samples in laboratory collections. These preserved specimens — a butterfly pinned in a museum drawer, a plant pressed and mounted a century ago, a fish preserved in formaldehyde — are irreplaceable records of what once lived on earth. When scientists want to study a species that has gone extinct or become rare, these museum specimens are the only source. When someone claims a patent on a biological resource and says 'this is a new discovery,' a museum specimen that is 200 years old can prove it was known long before. The Biological Diversity Act 2002 and Biological Diversity Rules 2004 allow the central government to designate institutions as 'Biological Heritage Sites' or 'Repositories' — officially recognising them as custodians of India's biodiversity record. The Mizoram Natural History Museum in Aizawl has been notified as India's 21st Designated Repository. This is particularly significant because Mizoram — in the Indo-Burma biodiversity hotspot — has extraordinary biological richness: endemic species found nowhere else on Earth. The museum's collections document this unique biodiversity and can now formally contribute to India's ABS (Access and Benefit Sharing) documentation.

Key Terms:

Term	Definition
Designated Repository	Institution officially recognised under Biological Diversity Act 2002 to preserve biological specimens; can access resources for research with streamlined permissions
Biological Diversity Act 2002	India's law implementing Convention on Biological Diversity (CBD); establishes NBA, SBBs, BMCs; mandates ABS; provides for designated repositories
Indo-Burma Biodiversity Hotspot	One of the world's 36 biodiversity hotspots; covers Northeast India, Myanmar, parts of Southeast Asia; Mizoram is within this hotspot
Mizoram Natural History Museum	Aizawl, Mizoram; 21st designated repository; houses specimens of fauna and flora endemic to Northeast India and the Indo-Burma hotspot



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Herbarium / Natural History Collection	Pressed plant specimens (herbarium) or preserved animal specimens – irreplaceable biological records; basis for taxonomic science and biodiversity documentation
ABS Connection	Designated repository specimens can be used in ABS documentation – proving prior knowledge and local use of biological resources; prevents bio-piracy claims

Important Points for UPSC:

- India's 36 biodiversity hotspots globally; India itself is within two – Western Ghats-Sri Lanka and Indo-Burma; Northeast India is part of Indo-Burma hotspot, one of the world's richest for endemic species
- 21 Designated Repositories: These include major institutions like ZSI (Zoological Survey of India), BSI (Botanical Survey of India), NBPGR (plant genetic resources), IISc, various state museums
- Biological Diversity Act 2002 Section 39: Empowers Central Government to notify institutions as repositories; gives them rights to access biological resources for research and conservation
- ZSI and BSI: Zoological Survey of India (Kolkata) and Botanical Survey of India (Kolkata) are India's premier natural history institutions; they are anchor repositories with millions of specimens
- Mizoram's biodiversity significance: State has 1% of India's land area but 10%+ of its plant species; extremely high endemism (unique species); museum's collection documents this unique heritage
- Link to ABS from Week 5: ABS framework (₹145 crore to BMCs) covered then; designated repositories provide the scientific evidence base for ABS claims – these two concepts are linked
- Convention on Biological Diversity (CBD): India is a party; CBD's Nagoya Protocol governs ABS internationally; designated repositories help India fulfil its CBD obligations for biodiversity documentation

ECLGS 5.0 – 4.11 LAKH GUARANTEES, Rs 1.55 LAKH CRORE MOBILISED

Ministry: Ministry of Finance / NCGTC

PIB Date: 7th July 2026

Easy Explanation

We covered ECLGS (Emergency Credit Line Guarantee Scheme) milestone in Week 2. This week brings a bigger update: ECLGS 5.0 has crossed 4.11 lakh guarantee accounts, with the guaranteed amount now exceeding Rs 1.55 lakh crore. To understand the significance, step back: ECLGS was launched in May 2020



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when COVID-19 locked down the economy. The government's logic was elegant – banks are unwilling to lend to stressed businesses because of default risk; if the government guarantees the loan, banks will lend. ECLGS 5.0 specifically targets businesses in stressed sectors that were most damaged by COVID and have not yet fully recovered: hospitality, aviation, leisure and entertainment, healthcare, and related sectors. The scheme has gone through five versions as the government has extended and refined it. The 4.11 lakh guarantees in ECLGS 5.0 alone – on top of hundreds of thousands of guarantees in earlier ECLGS versions – represent the government's largest single intervention to protect the MSME and services sector from permanent COVID damage. What makes this noteworthy right now: the Rs 1.55 lakh crore is not a budget expenditure – it is contingent liability. The government only pays if businesses default. The actual pay-out so far is a fraction of the guaranteed amount, suggesting most businesses are servicing their loans.

Key Terms:

Term	Definition
ECLGS 5.0	Emergency Credit Line Guarantee Scheme version 5; targets stressed sectors (hospitality, aviation, healthcare); 100% government guarantee; Rs 1.55 lakh crore guaranteed
NCGTC	National Credit Guarantee Trustee Company – manages ECLGS and other credit guarantee schemes; subsidiary of SIDBI; guarantees are channelled through NCGTC
Contingent Liability	A liability that only materialises if a specific event occurs; ECLGS is contingent – government pays only if borrowers default; not direct expenditure
Credit Guarantee	Government promises to repay lender if borrower defaults; removes collateral requirement; enables banks to lend to MSMEs and stressed businesses they would otherwise reject
Stressed Sectors	ECLGS 5.0 targets: hospitality, aviation, leisure and entertainment, healthcare, related service sectors – those most impacted by COVID and slow to recover
NPA Prevention	By keeping stressed businesses afloat through guaranteed credit, ECLGS prevents businesses from defaulting on old loans – reduces banking system NPA burden

Important Points for UPSC:





- ECLGS total across all versions: Rs 3.7+ lakh crore in total guarantees; 1.2+ crore MSME and business accounts benefited; India's largest credit guarantee intervention in history
- ECLGS 5.0 specifically: 4.11 lakh accounts; Rs 1.55 lakh crore guaranteed; average loan size Rs 37.7 lakh – skewed towards slightly larger service sector businesses vs earlier versions which had smaller MSMEs
- Government's actual fiscal cost: Guarantee = contingent liability, not direct outflow; estimated default rate ~5-8% on ECLGS loans; actual government payout is Rs 15,000-25,000 crore – modest relative to economic benefit
- Hospitality sector: Hotels, restaurants, travel agencies had 12-18 months of near-zero revenue during COVID; ECLGS 5.0 specifically designed to keep viable businesses alive through recovery period
- CGTMSE parallel: Credit Guarantee Fund Trust for Micro and Small Enterprises – the older, ongoing scheme; ECLGS is COVID-era emergency addition; both together constitute India's MSME credit guarantee ecosystem
- Moral hazard consideration: Critics argue guaranteed loans may encourage excessive risk-taking; government response – loans still require business viability assessment and repayment; guarantee is not a grant
- Exit timeline: ECLGS 5.0 guarantee period ends; after this, MSME credit guarantee needs are expected to be met by regular CGTMSE + new PLI-linked credit guarantee schemes

PERFORMANCE GRADING INDEX 2.0 – SCHOOL EDUCATION

GOVERNANCE REPORT CARD

Ministry: Ministry of Education

PIB Date: 7th July 2026

Easy Explanation

How do you compare the quality of school education across 36 states and union territories – each with different histories, resources, and challenges? You need a common framework that captures both outputs (learning outcomes, enrolment rates) and inputs (infrastructure, teacher quality, governance). The Ministry of Education's Performance Grading Index (PGI) was launched for this purpose. PGI 2.0 – the upgraded version – was released this week covering 2025-26 data for all states. PGI 2.0 assesses states on 73 indicators across 6 domains: Outcomes (learning levels in foundational, primary, upper-primary, and secondary stages), Access (enrolment, dropout rates), Infrastructure and Facilities (classrooms, toilets, electricity, internet), Equity (gender gap in enrolment, disability inclusion, SC/ST/OBC participation), Governance Processes (teacher vacancies, training, inspection frequency, digital tools use), and Teacher Education and Training. The grading



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gives each state a score out of 1,000 and places them in one of 10 grades – from 'Prachesta-3' (lowest) to 'Aatmanirbhar' (highest). The index is not just a report card – it creates competitive pressure between states, highlights best practices, and helps the Centre allocate technical assistance to lagging states. UDISE+ (below, Article 22) provides the data that feeds PGI.

Key Terms:

Term	Definition
PGI 2.0	Performance Grading Index 2.0 – upgraded school education assessment; 73 indicators; 6 domains; 10 grade levels from Prachesta-3 to Aatmanirbhar; out of 1,000 points
UDISE+	Unified District Information System for Education Plus – annual data collection from all 15 lakh+ schools; feeds PGI and education policy; data released this week for 2025-26
NEP 2020	National Education Policy 2020 – mandates foundational literacy/numeracy (FLN); restructures schooling as 5+3+3+4; PGI 2.0 tracks NEP implementation
FLN	Foundational Literacy and Numeracy – ability to read simple text and do basic arithmetic by Grade 3; NIPUN Bharat mission targets 100% FLN by 2026-27
NIPUN Bharat	National Initiative for Proficiency in Reading with Understanding and Numeracy – targets FLN for all children by end of Grade 3 by 2026-27
Aatmanirbhar grade	Highest PGI grade; only a handful of states and UTs typically achieve it; reflects excellence across all 6 domains of school education governance

Important Points for UPSC:

- PGI launched 2019 as PGI 1.0 (70 indicators, 1,000 points); PGI 2.0 (2022-23 onward) has 73 indicators and updated grading labels; 10 grades from Prachesta-3 to Aatmanirbhar
- PGI 2.0 six domains: Outcomes (360 pts), Access (80 pts), Infrastructure & Facilities (150 pts), Equity (80 pts), Governance Processes (200 pts), Teacher Education & Training (130 pts)
- High-performing states: Punjab, Chandigarh, Delhi, Tamil Nadu, Kerala, Gujarat consistently in top grades; Bihar, UP, Assam, MP historically in lower grades





- UDISE+ 2025-26 key findings (released alongside): 26.5 crore students enrolled; 15.09 lakh schools; 96 lakh teachers; GER at upper-primary 89%; digital boards in 16 lakh classrooms – progress visible
- NEP 2020 implementation tracking: PGI 2.0 specifically added indicators for NEP implementation – 5+3+3+4 restructuring, mother-tongue medium instruction in early grades, vocational education from Grade 6
- Gender parity: India has achieved near-parity at primary level (GPI 1.02 – more girls than boys enrolled); gap widens at secondary (GPI 0.97) and senior secondary (GPI 0.92) – PGI tracks this
- Competitive federalism in education: PGI creates interstate competition; states publicly share their grade; lagging states receive MoE technical assistance and increased Samagra Shiksha funds

NTCA 29TH MEETING + HUMAN-WILDLIFE CONFLICT PORTAL LAUNCHED

Ministry: Ministry of Environment, Forest and Climate Change / NTCA

PIB Date: 9th July 2026

Easy Explanation

As India's tiger population has grown to 3,682 (the highest count ever), a new problem has emerged: tigers are coming into contact with humans more frequently. When a tiger kills livestock, farmers demand compensation. When a tiger kills a person – and this happens 50-60 times a year in India – the grief and anger in that community can lead to retaliatory killings, poisoning, or poaching. The National Tiger Conservation Authority (NTCA) held its 29th Board Meeting this week in Coimbatore, chaired by Environment Minister Bhupender Yadav. Two major announcements came from this meeting. First: a new Centre of Excellence on Human-Wildlife Conflict was inaugurated at WII-SACON (Wildlife Institute of India - Salim Ali Centre for Ornithology and Natural History) in Coimbatore. This centre will research conflict patterns, test mitigation solutions (better bee-fence designs, early warning systems, livestock insurance models), and train forest staff. Second: a National Human-Wildlife Conflict Portal was launched – a real-time digital platform where forest officers can report conflict incidents, claim compensation, and track mitigation measures. The portal creates a national database of where and when conflicts happen, which species are involved, and what interventions work – replacing the current ad-hoc, paper-based reporting system.

Key Terms:

Term	Definition
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NTCA	National Tiger Conservation Authority – statutory body under Wildlife Protection Act 1972; manages 55 tiger reserves; chairperson is Environment Minister
Human-Wildlife Conflict (HWC)	When wildlife and humans compete for space and resources; manifests as crop raids, livestock kills, human injuries/deaths, and retaliatory wildlife killing
WII	Wildlife Institute of India – Dehradun; premier wildlife research institution; conducts tiger census, trains wildlife managers, develops conservation science
SACON	Salim Ali Centre for Ornithology and Natural History, Coimbatore – ornithology and ecology research; joint WII-SACON CoE on HWC inaugurated this week
Centre of Excellence on HWC	Dedicated research and training centre for human-wildlife conflict; WII-SACON, Coimbatore; will develop evidence-based mitigation solutions
National HWC Portal	Real-time digital platform for reporting conflict incidents, tracking compensation claims, and building a national database of conflict hotspots and mitigation effectiveness
Compensation mechanism	Under WPA 1972 and state schemes, victims of wildlife attacks receive compensation; varies by state; tiger kill of livestock typically Rs 10,000-25,000; human death Rs 5-10 lakh

Important Points for UPSC:

- NTCA 29th meeting: Held in Coimbatore (near forest reserves of Tamil Nadu); environment minister chairs; NTCA board includes representatives from tiger reserve states
- HWC scale in India: 500+ leopard attacks, 50-60 tiger attacks, 500+ elephant attacks causing human fatalities annually; 3,000+ livestock kills by big cats per year – significant rural livelihood impact
- Coimbatore location significance: Tamil Nadu has Anamalai, Mudumalai, Kalakad-Mundanthurai tiger reserves; proximity to Nilgiri Biosphere Reserve – India's richest multi-reserve landscape
- Centre of Excellence mandate: Research coexistence strategies – bee-fence barriers (elephants dislike bees), solar-powered lighting at forest edges, early warning SMS systems, livestock enclosure designs
- National HWC Portal: Forest officers input conflict data via mobile app; central server builds national heatmap; identifies chronic conflict zones; integrates with compensation payment tracking





- Last week tiger reintroduction (Week 5 brief) + this week HWC portal: Two sides of the same challenge – expanding tiger range brings new HWC opportunities; portal helps manage the interface
- Project Elephant parallel: India also has 29,000+ elephants; human-elephant conflict causes ~500 human deaths/year; similar portal and compensation framework exists but inconsistently applied
- NTCA statutory basis: Section 38L of Wildlife Protection Act 1972 (inserted by WPA Amendment 2006); NTCA has powers to de-notify tiger reserves, allocate funds, approve management plans

INDIA-AUSTRALIA CSIR-TKDL AGREEMENT – TRADITIONAL KNOWLEDGE PROTECTION

Ministry: Ministry of Science & Technology / CSIR

PIB Date: 10th July 2026

Easy Explanation

Traditional Knowledge Digital Library (TKDL) is one of India's most effective but underknown defences against bio-piracy – the commercial exploitation of India's traditional knowledge without permission or benefit sharing. Here is the problem it solves: someone files a patent in the USA or Europe claiming they have 'invented' a new treatment using turmeric for wound healing, or a yoga posture for back pain, or a neem-based pesticide. But these were known in India for centuries – documented in Ayurvedic texts, Siddha medicine, Unani compendiums, and Yoga traditions. Without access to these ancient texts (which are in Sanskrit, Hindi, Urdu, or Tamil), patent offices in USA, UK, or Australia grant these patents because they see no 'prior art' (evidence the thing existed before). TKDL was created by CSIR specifically to solve this: it has digitised 3.6 lakh traditional medicine formulations from Ayurveda, Siddha, Unani, and Yoga literature, and translated them into English, German, French, Japanese, and Spanish – languages that major patent offices use. India signed an agreement with Australia this week giving Australian IP Australia (Australia's patent office) formal, searchable access to TKDL. Henceforth, if someone files a patent in Australia based on Indian traditional knowledge, the examiner can search TKDL and reject the application.

Key Terms:

Term	Definition
TKDL	Traditional Knowledge Digital Library – CSIR database of 3.6 lakh+ traditional medicine formulations from Ayurveda, Siddha, Unani, Yoga; in 5 languages; prevents bio-piracy





Bio-piracy	Commercial exploitation of biological resources or traditional knowledge without consent or benefit sharing; often done through invalid patents in foreign countries
Prior Art	In patent law, evidence that an invention was already known before the patent was filed; TKDL provides 'prior art' against invalid patents based on Indian traditional knowledge
IP Australia	Australia's national intellectual property office; will now have formal access to TKDL for searching during patent examination; first formal TKDL agreement with Australasia
CSIR	Council of Scientific and Industrial Research – apex industrial R&D agency; also responsible for TKDL; created TKDL in 2001 with AYUSH Ministry
Neem and Turmeric victories	India successfully challenged US and European patents on neem (EPO 1995) and turmeric (USPTO 1997) using traditional knowledge arguments; motivated creation of TKDL
Traditional Knowledge Systems (TKS)	Ayurveda (Sanskrit texts), Siddha (Tamil texts), Unani (Arabic/Urdu texts), Yoga (Sanskrit texts) – TKDL covers all four TKS with cross-referencing to classical texts

Important Points for UPSC:

- TKDL statistics: 3.6 lakh formulations digitised; covers Ayurveda (900 books), Siddha (60 books), Unani (163 books), Yoga (900 asanas); equivalent to 10 crore+ pages of traditional text
- TKDL success: 2,000+ patent applications globally rejected or withdrawn after examiners found TKDL prior art; turmeric, neem, yoga patents revoked; TKDL has a near-perfect track record in challenges
- Previous TKDL access agreements: European Patent Office (EPO), USA's USPTO, UK IPO, German, Canadian patent offices – Australia is the latest addition; India aims to cover all major patent jurisdictions
- Australia's relevance: Australian biotech and agricultural companies have filed Indian-origin patents; agriculture (GM varieties of Indian crops), nutraceuticals, and traditional medicine are key areas
- CSIR-TKDL as India's soft power: TKDL demonstrates India's commitment to protecting traditional knowledge through science and documentation rather than just protest; internationally respected model





- Nagoya Protocol connection: CSIR-TKDL complements ABS framework (covered in Weeks 4 and 5); TKDL prevents wrongful patents, ABS ensures benefit sharing for legitimate commercial use – both protect India's biological heritage
- Global model: Several African and Latin American countries with rich traditional knowledge are modelling their own databases on TKDL; India shares the methodology through WIPO and CBD discussions

TBM DURGA BREAKTHROUGH – KOLKATA METRO PURPLE LINE

Ministry: Ministry of Housing & Urban Affairs / Kolkata Metro Rail Corporation

PIB Date: 10th July 2026

Easy Explanation

Building a metro tunnel under a dense city is one of the most complex engineering challenges humans undertake. You are drilling through soil and rock under existing buildings, roads, water mains, and foundations – often just metres away from them. Kolkata presents special challenges: its soil is alluvial (soft, waterlogged river silt from the Ganges delta) that wants to collapse into any tunnel you dig, and the city has some of India's oldest structures whose foundations cannot tolerate vibration. The Kolkata Metro's Purple Line (Joka to Esplanade) is extending the city's metro network and will require an underground section in the dense south-central part of the city. A Tunnel Boring Machine (TBM) – named 'Durga' – has been drilling this tunnel. On July 10, TBM Durga achieved 'breakthrough' – the moment when the tunnelling machine punches through to the other end of its planned tunnel section. This is the most dramatic and symbolic moment in tunnel construction: the machine emerges from the earth, often with workers gathering to cheer. The breakthrough means the underground section of the Joka-Esplanade corridor is now physically connected, paving the way for track laying, electrification, and eventual passenger service. Kolkata Metro is India's oldest metro (opened 1984) and the Purple Line is its newest extension.

Key Terms:

Term	Definition
TBM	Tunnel Boring Machine – massive cylindrical drilling machine that cuts through soil and rock while simultaneously installing precast concrete segments lining the tunnel
Breakthrough	The moment a TBM emerges at the other end of its planned tunnel section; marks completion of underground boring; precedes track laying and systems installation



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Kolkata Metro Purple Line	Joka to Esplanade corridor; 23 km; partially elevated, partially underground; Purple Line adds east-west connectivity to Kolkata's mostly north-south existing Metro
Kolkata Metro	India's first metro railway; opened 1984 (North-South line); now has 6 lines operational/under construction; KMRC (Kolkata Metro Rail Corporation) implements new lines
Alluvial Soil Challenge	Kolkata is on Ganges delta soft soil; TBM must operate under high groundwater pressure; earth pressure balance TBMs used; risk of subsidence above tunnel
KMRC	Kolkata Metro Rail Corporation – joint venture of Ministry of Railways and West Bengal government; implements new metro lines in Kolkata including Purple Line
Joka-Esplanade Corridor	Southern section of Kolkata network; Joka (south) to Esplanade (city centre); connects residential south Kolkata to commercial hub; Purple Line colour designation

Important Points for UPSC:

- Kolkata Metro history: Opened October 24, 1984 – India's first urban rail metro; currently operates Blue, Orange, Green, Purple, Yellow, and Aqua Line corridors
- TBM Durga: Earth Pressure Balance TBM; diameter ~6.4 m; cuts through soft Kolkata soil; simultaneous segment erection behind cutting head; German technology (Herrenknecht)
- Purple Line status: 23 km total; Joka to Taratala section already operational (10.8 km); underground section (Taratala to Esplanade) under construction; Durga breakthrough advances this section
- Esplanade significance: India's major metro interchange hub under development; 5 lines converge at Esplanade (Blue, Green, Purple, Yellow, and future Orange Line) – becoming India's most complex metro interchange
- Engineering challenges: Soil liquefaction risk; 60-100 year old buildings above tunnel zone; groundwater management; TBM face pressure must be perfectly calibrated to prevent building settlement
- Metro expansion across India: Delhi (392 km, largest), Mumbai (337 km), Bengaluru (177 km), Hyderabad (82 km), Chennai (109 km), Kolkata (60+ km operational); India building metros in 27+ cities
- UMIC (Urban Metro Infrastructure): Central government funds 50-60% of metro projects; states fund balance; metro rail policy 2017 encourages TOD (Transit-Oriented Development) around stations





3RD BRICS TRANSPORT MINISTERS' MEETING — NAGPUR

Ministry: Ministry of Road Transport & Highways / Ministry of Ports, Shipping and Waterways

PIB Date: 9th–10th July 2026

Easy Explanation

Transport is the circulatory system of an economy — it determines how goods, people, and ideas move between places. For BRICS nations — Brazil, Russia, India, China, South Africa, plus the five new members (UAE, Saudi Arabia, Iran, Ethiopia, Indonesia) — transport connectivity is both an opportunity and a challenge. Their combined economies account for nearly half of global GDP but their transport networks are often disconnected, making intra-BRICS trade more expensive than trade with other blocs. India, as BRICS Chair for 2026, hosted the 3rd BRICS Transport Ministers' Meeting in Nagpur — chosen symbolically as India's geographical centre and a major road, rail, and logistics hub. The meeting focused on three themes: Multimodal Transport Corridors (creating seamless land+sea+air routes that connect BRICS countries, especially the International North-South Transport Corridor linking India to Russia via Iran), Port Development and Maritime Cooperation (Kamarajar Port's new 18-metre draft, covered in Art 8, was a showcase), and Sustainable Transport (electric vehicles, green shipping, low-carbon aviation for BRICS fleets). India proposed a BRICS Smart Freight Platform — a digital tracking system that would allow shippers to monitor cargo across all BRICS transport networks in real time.

Key Terms:

Term	Definition
BRICS Transport Ministers' Meeting	3rd edition; held in Nagpur; under India's BRICS chairship 2026; covers multimodal connectivity, ports, sustainable transport
INSTC	International North-South Transport Corridor — 7,200 km multimodal corridor; connects India to Russia via Iran; reduces transit time India-Europe from 45 to 25 days
Multimodal Transport	Combining sea, rail, road, and air in a single seamless journey; reduces cost and time vs single-mode transport; BRICS agenda to develop corridors
Chabahar Port	Iran's deep-water port on Arabian Sea; India developing under bilateral agreement; key node on INSTC; bypasses Pakistan for access to Central Asia and Russia





BRICS Smart Freight Platform	India's proposal: Digital tracking platform for cargo across all BRICS transport networks; reduces documentation, improves visibility, cuts transit delays
Green Shipping	Reducing carbon emissions from international shipping; IMO target zero emissions by 2050; BRICS nations (large shipping fleets) adopting LNG, ammonia, methanol fuels
Nagpur	India's geographical centre; major logistics hub; junction of NH-6, NH-7, NH-44; home to MIHAN (Multi-modal International Hub Airport at Nagpur); apt venue for transport meeting

Important Points for UPSC:

- INSTC (International North-South Transport Corridor): India-Iran-Azerbaijan-Russia; 7,200 km; cuts shipping time from India to Europe by 20 days; Russia-Ukraine conflict has accelerated India's interest in INSTC as alternative to Suez
- Chabahar Port: India operating terminal since 2018; connects to Afghan road network; also an INSTC node; not subject to US sanctions on Iran specifically because of its strategic value to Afghanistan connectivity
- BRICS+ transport dimension: UAE (Jebel Ali, world's 9th largest port), Saudi Arabia (Red Sea logistics), Indonesia (Malacca Strait maritime control) – new BRICS members add maritime chokepoints to bloc
- India-Russia via INSTC: Before INSTC fully operational, India-Russia cargo goes Suez Canal (45 days); via INSTC (Mundra-Bandar Abbas-Astrakhan-Moscow) takes 25 days – significant time saving
- Nagpur MIHAN: Multi-modal International Hub Airport; SEZ + airport + road/rail connectivity; currently under-utilised but envisioned as India's air cargo hub for central India
- Sustainable transport theme: India showcased electric highway pilots (overhead wires for trucks), hydrogen fuel cell bus demonstrations, green port certifications (VOC Port from Week 4 brief)
- India's transport ambitions under BRICS chair: Position India as a multimodal connectivity hub between South Asia, Central Asia, Southeast Asia, and Africa – 'Connective India' vision

COAL SURFACE GASIFICATION SCHEME — Rs 37,500 CRORE

GOVERNMENT INITIATIVE

Ministry: Ministry of Coal

PIB Date: 8th July 2026



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Easy Explanation

We covered coal gasification in Week 4 (BCGCL project in Odisha). This week brings the national framework: the Ministry of Coal invited applications under its Rs 37,500 crore Scheme for Promotion of Surface Coal and Lignite Gasification Projects. The word 'surface' distinguishes this from underground coal gasification (UCG) – in surface gasification, coal is mined conventionally and then gasified above ground in a reactor. The scheme uses a Production-Linked Incentive (PLI) model but applied to coal gasification: companies that set up coal gasification plants get financial support linked to how much syngas they actually produce, not just for building the plant. The scheme covers both coal (from deep mines) and lignite (soft, low-grade coal found in states like Gujarat, Rajasthan, Tamil Nadu, West Bengal). Lignite is currently considered too low-grade to use efficiently in power plants – gasification converts it into syngas that can be used for chemicals, fertilisers, and fuels. The scheme targets converting 100 million tonnes of coal/lignite into syngas annually by 2030 – amounting to Rs 20,000+ crore in chemical feedstocks currently imported (methanol, ammonia, dimethyl ether). If achieved, it would reduce India's petrochemical import bill, create hundreds of thousands of jobs in coal-belt states, and give a second life to coal reserves that would otherwise be mined and burned dirtily.

Key Terms:

Term	Definition
Surface Coal Gasification	Converting mined coal into syngas ($H_2 + CO$) above ground in a reactor using steam and oxygen; cleaner than burning coal; produces chemical feedstocks
Lignite	Low-grade, soft brown coal with high moisture; found in Gujarat (Kutch), Rajasthan, Tamil Nadu (Neyveli), West Bengal; currently used mainly for power; gasification gives it higher value
Syngas	Synthetic gas ($H_2 + CO$ mixture) from coal gasification; feedstock for ammonia (fertilisers), methanol (fuel/chemicals), dimethyl ether, hydrogen – wide industrial uses
Rs 37,500 crore scheme	PLI-type scheme for promoting coal and lignite gasification plants; applications invited from public and private sector; support linked to actual syngas production
Coal-to-Chemicals	Converting coal into chemical feedstocks rather than burning for electricity; higher value addition; reduces import dependence on petrochemicals





Neyveli Lignite Corporation (NLC)	CPSE mining lignite in Tamil Nadu and Rajasthan; major potential beneficiary of lignite gasification scheme; currently generates power, could diversify to chemicals
100 MT Target	Government target to gasify 100 million tonnes of coal/lignite annually by 2030; current capacity near-zero; requires 6-8 large plants plus many smaller units

Important Points for UPSC:

- India's coal reserves: 361 billion tonnes; one of world's largest; mostly used for power generation; gasification creates a pathway to use coal for chemicals rather than just burning
- Lignite vs coal: Lignite has 25-35% moisture, lower calorific value, more CO₂ per unit energy – inefficient for power plants; gasification converts it at higher efficiency to syngas
- Scheme structure: PLI model – incentive paid per unit of syngas produced (not per plant built); ensures only productive plants get support; Rs 37,500 crore over multiple years
- Import substitution targets: India imports Rs 1.5 lakh crore in petrochemicals annually (methanol, ammonia, propylene etc.); coal gasification can domestically produce many of these from India's own coal
- BCGCL context: Week 4 covered BCGCL (Lakhanpur, Odisha) for ammonium nitrate from coal; this week's national scheme is the broader framework under which BCGCL and similar projects operate
- Environmental dimension: Surface gasification is cleaner than burning coal directly; CCUS (Carbon Capture, Utilisation and Storage) can be integrated to capture CO₂ from syngas; 'cleaner coal' pathway
- States benefiting: Jharkhand, Odisha, Chhattisgarh, WB, MP (coal); Gujarat, Rajasthan, Tamil Nadu (lignite) – coal-belt states get industrial diversification beyond just mining

BRICS ANTI-DRUG AGENCIES MEETING – GUWAHATI

Ministry: Ministry of Home Affairs / Narcotics Control Bureau

PIB Date: 6th–7th July 2026

Easy Explanation

We covered the NCORD 10th Apex Meeting and Vision Document on Drug Control 2026-2029 in last week's brief. This week follows up with BRICS action: India hosted the BRICS Heads of Anti-Drug Agencies meeting in Guwahati on July 6-7. Guwahati was chosen deliberately – Assam is in India's Northeast, which shares a long border with Myanmar (the Golden Triangle), is a major transit route for drugs from Myanmar and



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Bangladesh, and has been seeing increasing synthetic drug flows. The heads of anti-narcotics agencies from all BRICS nations attended – Russia's FSKN equivalent, Brazil's SENAD, China's NNCC, South Africa's SAPS Drug Bureau, and representatives from the 5 new BRICS members (UAE, Saudi Arabia, Iran, Ethiopia, Indonesia). The agenda covered intelligence sharing (sharing information about drug trafficking routes and networks across BRICS), precursor chemical control (the chemical building blocks of drugs – acetic anhydride for heroin, pseudoephedrine for meth – are traded globally and BRICS nations need to track and control these together), darknet monitoring, and harmonising anti-drug laws. The meeting produced the 'Guwahati Declaration' – a commitment by all BRICS nations to intensify cooperation on drug intelligence, precursor control, and demand reduction.

Key Terms:

Term	Definition
BRICS Heads of Anti-Drug Agencies Meeting	BRICS-level law enforcement coordination; agencies share intelligence on trafficking routes, precursor chemicals, darknet operations; India hosts under BRICS chairship
Golden Triangle	World's largest opium-producing region; Myanmar, Laos, Thailand; source of heroin flowing into India's Northeast and beyond; Guwahati is the frontline city
Guwahati Declaration	Outcome document from 2026 BRICS anti-drug meeting; commits all BRICS nations to intelligence sharing, precursor control, darknet monitoring cooperation
Precursor Control	Controlling legal chemicals (acetic anhydride, pseudoephedrine, KMnO ₄) that can be diverted to make drugs; requires international cooperation as chemicals are traded globally
NCB	Narcotics Control Bureau – India's apex drug enforcement agency; hosted the BRICS meeting; headquarters in New Delhi
UNODC	United Nations Office on Drugs and Crime – provides technical support; India works with UNODC on drug demand reduction and law enforcement training
Fentanyl dimension	Synthetic opioid 100x stronger than morphine; made in China and India and trafficked globally; BRICS anti-drug cooperation specifically addresses fentanyl supply chains

Important Points for UPSC:



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- India's Northeast drug challenge: Mizoram-Myanmar border is a primary entry point for heroin and methamphetamine ('Yaba'); Assam is a transit state; Manipur has highest per-capita HIV rate in India linked to IV drug use
- China NNCC participation: China's National Narcotics Control Commission; significant because China is a major source of precursor chemicals (acetic anhydride, fentanyl precursors) – BRICS platform to pressure China on this
- BRICS + narcotics: Russia (transit for Afghan heroin to Europe), Brazil (cocaine transshipment), South Africa (drug trafficking hub for Africa), Iran (Afghan heroin transit) – all BRICS nations affected
- Guwahati Declaration specifics: (1) Mutual Legal Assistance Treaty (MLAT) fast-track for drug cases; (2) Precursor Early Warning System (PEWS) shared database; (3) BRICS dark web monitoring working group
- NCORD Vision Document 2026-2029 link: Last week's domestic drug control roadmap + this week's BRICS international cooperation = India addressing narcotics at both domestic and multilateral levels simultaneously
- Fentanyl crisis: US has 100,000+ overdose deaths/year from fentanyl; precursors made in China/India; India is implementing stricter controls; BRICS platform allows coordinated action
- India's drug problem scale: 31 million cannabis users, 2.3 million opioid users (AIIMS study); Punjab, Northeast India, urban centres have highest burden; enforcement alone insufficient – demand reduction essential

LokOS – DIGITAL BACKBONE FOR RURAL LIVELIHOODS

Ministry: Ministry of Cooperation / Ministry of Rural Development

PIB Date: 4th July 2026

Easy Explanation

Imagine a tribal woman in a remote village in Jharkhand who makes beautiful lac jewellery. She has a skill, she has a product, but she has no market – the only buyers who come to her village offer Rs 10 for something worth Rs 100. She is isolated from digital markets, from government schemes, and from formal financial services. LokOS – a PIB backgrounder released this week – is the government's answer to this isolation. LokOS is a Digital Operating System for Rural Enterprises, being built by the Ministry of Cooperation and Ministry of Rural Development together. It is a technology platform that connects rural cooperative societies, Self-Help Groups (SHGs), Farmer Producer Organisations (FPOs), and individual artisans to: e-commerce marketplaces (they can sell on government's e-SARAS and ONDC platforms), digital financial services (savings, credit, insurance through Business Correspondent networks), government schemes (PM-KISAN, MGNREGA/VB-G RAM G, PM Awas Yojana – all visible and applicable through LokOS), and



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supply chain support (aggregating produce for bulk sale, quality certification, cold chain logistics). Think of LokOS as a rural version of the Government e-Marketplace (GeM) – but designed specifically for the informal rural economy to plug into the formal digital economy.

Key Terms:

Term	Definition
LokOS	Digital Operating System for Rural Enterprises; platform connecting rural cooperatives, SHGs, FPOs, artisans to markets, finance, and government schemes
SHG	Self-Help Group – small group of rural women who pool savings and access credit collectively; 10 crore+ SHG members in India; primary beneficiary of LokOS
FPO	Farmer Producer Organisation – cooperative of farmers to collectively bargain for better prices, access credit, and sell at scale; 10,000+ FPOs registered
ONDC	Open Network for Digital Commerce – India's open e-commerce protocol; any seller (including rural artisans via LokOS) can list and sell across all ONDC-enabled platforms
e-SARAS	Online marketplace for SHG products; Ministry of Rural Development's platform; LokOS integration allows artisans to list directly from villages via BC (Business Correspondent) network
Business Correspondent (BC)	Bank-appointed agent operating in villages providing doorstep banking services; LokOS uses BC network as last-mile digital service point for rural enterprises
ONDC + LokOS	ONDC provides the marketplace network; LokOS provides the village-level entry point; together they bring rural producers into national digital commerce

Important Points for UPSC:

- LokOS architecture: Rural enterprise (SHG/FPO/cooperative/artisan) → LokOS platform (via smartphone or BC kiosk) → Multiple outputs: sell on ONDC/e-SARAS, access PM scheme benefits, get formal credit
- SHG ecosystem: India has 1.19 crore SHGs with 13.4 crore members (mostly women); SHGs handle Rs 4.5 lakh crore in savings; LokOS gives this enormous network a digital market access layer



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- FPO integration: 10,000+ FPOs registered; produce from FPOs can now be listed on NAFEX (NAFED, from Week 4 brief) and ONDC via LokOS; price discovery improves for farmers
- Bharat Taxi parallel (Week 5): Both LokOS and Bharat Taxi use cooperative economics + digital platforms; LokOS is for rural artisans/producers, Bharat Taxi is for urban transport workers – same philosophy
- Ministry of Cooperation (created 2021): Under Amit Shah; LokOS is a flagship initiative of this ministry; connects to Sahkar Se Samridhhi (Prosperity through Cooperation) vision
- Digital financial inclusion: LokOS integrates with PM Jan Dhan accounts, RuPay cards, and mobile banking; tribal and rural women who were previously unbanked can access credit through LokOS-linked SHG profiles
- Market linkage impact: Studies show digital market access for rural artisans increases income by 30-50% by eliminating middlemen; LokOS at scale could lift millions from near-poverty

UDISE+ 2025-26 — INDIA'S ANNUAL SCHOOL EDUCATION DATA CENSUS

Ministry: Ministry of Education / Department of School Education & Literacy

PIB Date: 7th July 2026

Easy Explanation

Every year, the Ministry of Education conducts the world's most comprehensive school data survey: UDISE+ (Unified District Information System for Education Plus). Every one of India's 15.09 lakh schools fills in a detailed form about its enrolment, teachers, infrastructure, learning outcomes, and facilities. The data for 2025-26, released this week, provides a granular picture of India's 26.5 crore student population across all grades, states, and categories. Key findings from this year's data: India's Gross Enrolment Ratio (GER) at the primary level has exceeded 100% (meaning more children are in primary school than the age cohort – some are older children catching up or repeating). The GER at upper-primary is 89%, at secondary 81%, and at senior secondary 56% – showing significant dropout between Class 8 and Class 12. This is the 'funnel problem' in Indian education. Teacher-pupil ratios have improved nationally but remain poor in several states. The number of schools with functional toilets (separate for boys and girls), electricity, and internet connectivity has increased. 16 lakh classrooms now have digital boards/smart boards. But significant gaps remain: 40,000+ schools still have single teachers, 1.5 lakh schools still have no drinking water on premises, and learning outcomes (the actual quality of what children know) remain a serious concern despite infrastructure improvements.

Key Terms:



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Term	Definition
UDISE+	Unified District Information System for Education Plus – annual census of all schools; 15.09 lakh schools; 26.5 crore students; 96 lakh teachers; basis for education policy
GER	Gross Enrolment Ratio – number enrolled at a level divided by age-group population x 100; >100 means over-age students enrolled; India's primary GER is ~105%
NER	Net Enrolment Ratio – proportion of the correct age group enrolled; more meaningful than GER; India's primary NER ~92%; gap from 100% = out-of-school children
GPI	Gender Parity Index – ratio of girls to boys enrolled; GPI = 1 means equal; India's primary GPI 1.02 (more girls); secondary GPI 0.97 (slightly fewer girls)
Dropout Rate	Children who enrol but leave school before completing; India's secondary dropout rate 14.9%; highest in Assam, Tripura, Odisha; low in Kerala, Tamil Nadu
DISE	District Information System for Education – original system replaced by UDISE (2012) and then UDISE+ (2018) with enhanced indicators including learning outcomes
NEP 2020 metrics	UDISE+ now tracks NEP 2020 implementation: mother-tongue medium instruction, vocational education enrolment from Grade 6, FLN assessment scores, play-based learning in Grade 1-2

Important Points for UPSC:

- UDISE+ 2025-26 key numbers: 15.09 lakh schools; 26.52 crore students; 96.87 lakh teachers; 7.7 lakh schools with smart classrooms; 14.7 lakh schools with computer facilities
- GER at different levels: Pre-primary 71.5%, Primary 103.4%, Upper-primary 89.2%, Secondary 81.5%, Senior Secondary 56.3% – sharp fall from secondary to senior secondary is the biggest challenge
- Gender progress: Primary GPI 1.02 (more girls than boys at primary); however, girls dropout rate spikes at secondary level particularly in states like Rajasthan, UP, Bihar – safety and marriage are cited reasons





- Infrastructure progress: 98.6% schools with drinking water (up from 85% in 2013); 97.4% with toilet facilities; 89.1% with electricity; 54.8% with internet – significant decade-long improvement
- Single-teacher schools: 40,341 schools still run by a single teacher – these are typically in remote tribal/hill areas; NEP 2020 recommends multi-grade teaching strategies for these schools
- Learning outcomes gap: While enrolment and infrastructure have improved dramatically, ASER (Annual Status of Education Report) data shows only 42% of Grade 5 students can read a Grade 2 text – infrastructure ≠ learning
- PGI-UDISE+ link: PGI (Art 14 above) uses UDISE+ data as its primary source; good UDISE+ data quality is essential for meaningful PGI scores and state comparisons

TribeX — DIGITAL LEARNING PLATFORM FOR TRIBAL ARTS, CULTURE AND TRADITIONAL KNOWLEDGE

Ministry: Ministry of Tribal Affairs

PIB Date: 7th July 2026

Easy Explanation

India has 705 Scheduled Tribes (STs), each with distinct languages, art forms, medicinal knowledge, agricultural practices, and cultural traditions. The Warli tribe of Maharashtra paints geometric patterns that are internationally exhibited. The Gond people of Madhya Pradesh produce vibrant narrative paintings that sell for lakhs in art markets. The Bodo of Assam weave textiles with natural dyes. The Santhals of Jharkhand have elaborate oral literature and music traditions. But for most tribal youth, this cultural heritage is something that is slowly being lost – as families move to cities, as formal education happens in Hindi or regional languages rather than tribal languages, and as traditional knowledge is not transmitted because it is not seen as economically valuable. TribeX – launched by Tribal Affairs Minister Jual Oram on July 7 – is a digital platform designed specifically to document, teach, and commercialise tribal arts, culture, and traditional knowledge. It has three components: a Learning Management System (LMS) where tribal knowledge holders record and teach their skills online; a Marketplace where certified tribal artisans can sell their work; and a Documentation Archive where rare tribal languages, art forms, and traditional ecological knowledge (medicine, farming, water management) are digitised before they are lost. TribeX connects to TKDL (covered in Art 16) in purpose – both protect India's traditional knowledge, one through patent law, the other through cultural digital preservation.

Key Terms:

Term	Definition
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TribeX	Digital Learning Platform for Tribal Arts, Culture and Traditional Knowledge; Ministry of Tribal Affairs; LMS + marketplace + documentation archive
Scheduled Tribes (STs)	Constitutionally recognised tribal communities (Article 342); 705 STs in India; 10.45 crore population (2011 Census); 8.6% of India's population
Traditional Ecological Knowledge (TEK)	Indigenous knowledge of local ecosystems – medicinal plants, sustainable farming, water harvesting, forest management; passed down orally for generations; TribeX digitises this
Tribal Language Preservation	India has 22 scheduled languages but 780+ languages spoken; tribal languages are most endangered; TribeX creates digital resources for tribal language learning and documentation
TRIFED	Tribal Cooperative Marketing Development Federation – government body promoting tribal products; TribeX marketplace complements TRIFED's e-commerce platform
Warli, Gond, Pattachitra	Tribal/folk art forms: Warli (Maharashtra), Gond/Gondi (MP), Pattachitra (Odisha), Madhubani (Bihar); TribeX teaches these through online courses led by master artisans
Constitutional provisions	Article 342 (STs identification); Fifth Schedule (tribal area administration in mainland states); Sixth Schedule (tribal area administration in Northeast); Forest Rights Act 2006

Important Points for UPSC:

- 705 Scheduled Tribes in India; 10.45 crore ST population (2011 Census); 26 states and 6 UTs have Scheduled Tribe communities; most concentrated in Jharkhand, Odisha, MP, Chhattisgarh, NE states
- TribeX three pillars: (1) Learning Management System – tribal masters teach cultural skills online; (2) Certified Artisan Marketplace – verified tribal artisans sell directly to consumers; (3) Documentation Archive – endangered languages and knowledge recorded
- Cultural heritage loss: UNESCO estimates 40% of world's 7,000 languages will disappear by 2100; tribal languages most at risk; many have no written script; TribeX creates audio-visual repositories
- Economic dimension: Tribal handicrafts market is Rs 2,500 crore; tribal art fetches premium in urban and international markets; but tribals receive minimal share; TribeX marketplace eliminates middlemen





- TRIFED + TribeX: TRIFED has e-commerce platform (Tribes India); TribeX's certified artisan marketplace will integrate with TRIFED's platform – broader reach, quality certification system
- Forest Rights Act 2006 link: FRA recognises tribal communities' rights to forest land and resources; tribal traditional ecological knowledge (TEK) documented in TribeX can support FRA claims and conservation planning
- Previous platforms comparison: e-SARAS (SHG products), NAFEX (agricultural commodities), TribeX (tribal arts/knowledge) – India systematically building digital market access for each excluded producer community
- Bhubaneswar Declaration: National Workshop on Strengthening Tribal Research Institutes concluded in Bhubaneswar same week; TribeX launch and this workshop together represent the week's biggest tribal affairs push





IMPORTANT FACT ABOUT NHRC

The Paris Principles angle is genuinely UPSC-worthy – NHRC currently holds 'A' status with GANHRI (Global Alliance of National Human Rights Institutions), which was under review. That status determines whether India can participate in UN Human Rights Council discussions.

PRACTICE QUESTIONS

10 PRELIMS QUESTIONS — UPSC PRELIMS STYLE

Q1. With reference to the CG Semi OSAT facility inaugurated in Sanand, Gujarat, consider the following:

1. OSAT stands for Outsourced Semiconductor Assembly and Test.
2. CG Semi is a joint venture between Renesas Electronics (Japan) and the Murugappa Group (India).
3. The facility fabricates chips from silicon wafers — India's first semiconductor fabrication plant.
4. It is being supported under the India Semiconductor Mission (ISM) with an outlay of Rs 76,000 crore.

How many of the above are correct?

- (a) Only two
- (b) Only three
- (c) All four
- (d) Only one

Q2. The Pinaka Long Range Guided Rocket (LRGR) tested this week uses which combination of navigation systems?

- (a) GPS and GAGAN only
- (b) NavIC, GPS, and Inertial Navigation System (INS)
- (c) NavIC and GLONASS (Russian) only
- (d) GPS and Ring Laser Gyroscope only

Q3. 'Bintang Adipurna', which PM Modi received during his Indonesia visit, is:

- (a) Indonesia's highest military honour conferred on foreign military officers
- (b) Indonesia's highest civilian award — Order of the Star of Magnificent Splendour
- (c) A joint India-Indonesia cultural award recognising civilisational ties





(d) Indonesia's national honour given to Heads of State for diplomatic contributions

Q4. Consider the following statements about the India-Australia 3rd Annual Summit:

1. PACTS stands for Australia-India Partnership on Cyber, Critical Technologies and Supply Chains.
2. The India-Australia Joint Declaration on Defence and Security Cooperation includes logistics support arrangements.
3. The CSIR-TKDL agreement gives IP Australia access to India's Traditional Knowledge Digital Library.
4. India and Australia signed a Full Defence Agreement (FDA) making Australia India's primary defence partner.

Which of the above are correct?

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

Q5. Kamarajar Port becoming India's second major port with 18-metre draft capability is significant because:

1. It allows the largest container ships and VLCCs to call directly without transshipment.
2. The first major port to achieve 18-metre draft was Jawaharlal Nehru Port Authority (JNPA), Mumbai.
3. Kamarajar Port is located near Chennai, Tamil Nadu, and was formerly known as Ennore Port.
4. All 12 major Indian ports now have 18-metre or greater draft capability.

Which of the above are correct?

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

Q6. The Narmada Water Disputes Tribunal (NWDT) Award of 1979 allocated Narmada waters to four states. Which of the following correctly matches the state with its allocation?

- (a) Madhya Pradesh – 18.25 MAF; Gujarat – 9 MAF; Maharashtra – 0.25 MAF; Rajasthan – 0.5 MAF
- (b) Gujarat – 18.25 MAF; Madhya Pradesh – 9 MAF; Maharashtra – 0.5 MAF; Rajasthan – 0.25 MAF
- (c) Madhya Pradesh – 9 MAF; Gujarat – 18.25 MAF; Rajasthan – 1 MAF; Maharashtra – 0.25 MAF
- (d) Madhya Pradesh – 12 MAF; Gujarat – 12 MAF; Maharashtra – 2 MAF; Rajasthan – 2 MAF





Q7. TReDS, which has been mandated for all Central Public Sector Enterprises for MSME payments, is regulated by:

- (a) SEBI (Securities and Exchange Board of India)
- (b) Ministry of MSME directly
- (c) Reserve Bank of India (RBI)
- (d) National Bank for Agriculture and Rural Development (NABARD)

Q8. The CSIR-TKDL (Traditional Knowledge Digital Library) has:

- 1. Digitised 3.6 lakh traditional medicine formulations from Ayurveda, Siddha, Unani, and Yoga.
- 2. Prevented more than 2,000 invalid patent applications globally since its inception.
- 3. Been translated into five languages – English, German, French, Japanese, and Spanish.
- 4. Been created by the Ministry of Science & Technology and Ministry of AYUSH jointly.

How many of the above are correct?

- (a) Only three
- (b) Only two
- (c) All four
- (d) Only one

Q9. INS Mahendragiri, the 6th Project 17A stealth frigate, is named after:

- (a) A peak in the Western Ghats in Kerala
- (b) A mountain range in the Himalayas
- (c) The highest peak of the Eastern Ghats mountain range in Odisha
- (d) An island in the Andaman and Nicobar group

Q10. Consider the following about LokOS and TribeX:

- 1. LokOS is a digital platform connecting rural cooperatives, SHGs, and FPOs to e-commerce and government schemes.
- 2. TribeX has three components: Learning Management System, Certified Artisan Marketplace, and Documentation Archive.
- 3. Both platforms are initiatives of the Ministry of Tribal Affairs.
- 4. LokOS integrates with ONDC (Open Network for Digital Commerce) to give rural producers access to digital markets.

Which of the above are correct?

- (a) 1, 2 and 4 only





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

2 MAINS QUESTIONS

MAINS QUESTION 1 – 150 WORDS:

PM Modi's visits to Indonesia and Australia in the same week – producing the Bintang Adipurna award and IIM Bangalore's overseas campus on one hand, and PACTS and the CSIR-TKDL agreement on the other – reflect two distinct but complementary foreign policy objectives. What are these objectives, and how do the specific outcomes of each visit advance India's long-term strategic interests in the Indo-Pacific?

MAINS QUESTION 2 – 250 WORDS:

'India's week in review – the CG Semi OSAT, Pinaka LRGR test, INS Mahendragiri commissioning, and the Viksit UDAN launch – collectively reveal a country accelerating across four simultaneous tracks: technology manufacturing, precision warfare capability, indigenous naval power, and inclusive connectivity.' Critically examine whether India is building these capabilities in isolation or as part of a coherent national power doctrine, and identify the key structural gaps that remain.

PRELIMS ANSWERS & EXPLANATIONS

Q1. Answer: (b) Only three

Explanation: Statement 3 is WRONG – CG Semi is an OSAT (assembly and test) facility, NOT a fabrication plant. An OSAT packages and tests chips that have been fabricated elsewhere. India's first actual fabrication plant (making chips from silicon wafers) is being built by Tata Electronics in Assam and Micron in Gujarat – these are not yet operational. Statements 1 (OSAT definition), 2 (CG Semi JV details), and 4 (ISM Rs 76,000 crore) are correct.

Q2. Answer: (b)





Explanation: Pinaka LRGR uses GPS + NavIC (India's own satellite navigation) + Inertial Navigation System (INS). This triple-redundant navigation makes it jam-resistant – even if GPS is denied in a conflict, NavIC and INS continue to guide the rocket. GAGAN is India's satellite-based augmentation system for aviation (not a primary navigation system for missiles). GLONASS is Russian and not integrated. Ring Laser Gyroscope is a component of INS, not a standalone navigation system.

Q3. Answer: (b)

Explanation: Bintang Adipurna is Indonesia's highest civilian award – translated as 'Order of the Star of Magnificent Splendour.' It was conferred on PM Modi by President Prabowo Subianto. It is NOT a military honour. It is NOT a joint India-Indonesia award (it is purely an Indonesian national honour). It is NOT exclusively for Heads of State – it is the highest civilian award that Indonesia confers on distinguished foreign recipients.

Q4. Answer: (a) 1, 2 and 3 only

Explanation: Statement 4 is WRONG – India and Australia did NOT sign a 'Full Defence Agreement (FDA)'; no such instrument exists in Indian foreign policy terminology. They signed a Joint Declaration on Defence and Security Cooperation – an important but non-binding political declaration. Statements 1 (PACTS full form), 2 (logistics support arrangements in defence declaration), and 3 (CSIR-TKDL access for IP Australia) are all correct.

Q5. Answer: (a) 1, 2 and 3 only

Explanation: Statement 4 is WRONG – NOT all 12 major Indian ports have 18-metre draft. Most major ports have 11-16 metre draft. Only JNPA (first) and Kamarajar (second) have achieved 18-metre draft among major ports. This is precisely why the Kamarajar achievement is newsworthy. Statements 1, 2, and 3 are all factually correct.

Q6. Answer: (a)

Explanation: NWDT 1979 allocation: Madhya Pradesh 18.25 MAF (largest, as Narmada originates in MP), Gujarat 9 MAF, Rajasthan 0.5 MAF, Maharashtra 0.25 MAF. This exact allocation has appeared in UPSC papers before. The trap is confusing MP and Gujarat – Gujarat built Sardar Sarovar Dam but MP has the largest water share.

Q7. Answer: (c)

Explanation: TReDS (Trade Receivables Discounting System) platforms are regulated by the Reserve Bank of India (RBI), not SEBI, Ministry of MSME, or NABARD. RBI licences TReDS platforms (RXIL, M1xchange,





Invoicemart) under the Payment and Settlement Systems Act 2007. SEBI regulates capital markets (stocks, bonds). NABARD regulates rural and agricultural finance.

Q8. Answer: (c) All four

Explanation: All four statements about CSIR-TKDL are correct. 3.6 lakh formulations digitised; 2,000+ invalid patents rejected; 5 languages (English, German, French, Japanese, Spanish); created jointly by CSIR (under MoST) and Ministry of AYUSH. This is a favourite UPSC topic – all four facts must be memorised.

Q9. Answer: (c)

Explanation: INS Mahendragiri is named after Mahendragiri – the highest peak of the Eastern Ghats, located in Odisha. The naming convention for Project 17A frigates uses mountain ranges/peaks: INS Nilgiri (Western Ghats), INS Himgiri (Himalayas), INS Udaygiri (Odisha range), INS Dunagiri (Uttarakhand), INS Mahendragiri (Eastern Ghats, Odisha). NOT Western Ghats Kerala (that is Nilgiri), NOT Himalayas, NOT Andaman islands.

Q10. Answer: (a) 1, 2 and 4 only

Explanation: Statement 3 is WRONG – LokOS is NOT from the Ministry of Tribal Affairs. LokOS is a joint initiative of the Ministry of Cooperation and Ministry of Rural Development for rural cooperatives, SHGs, and FPOs broadly. TribeX is from the Ministry of Tribal Affairs. Statement 3 conflates the two programmes. Statements 1 (LokOS description), 2 (TribeX three components), and 4 (LokOS-ONDC integration) are all correct.

MAINS ANSWERS

Answer 1: The two visits reflect India's use of **soft power** and **strategic-technological partnerships** to strengthen its Indo-Pacific role.

1. Indonesia—building influence through civilisational and knowledge diplomacy

1. The Bintang Adipurna award recognises India's growing political goodwill and Modi's contribution to bilateral relations.
2. IIM Bangalore's overseas campus will export Indian education, train regional leaders and deepen long-term people-to-people ties.
3. These outcomes support India's Act East Policy by building trust with Indonesia, a key maritime neighbour near the Malacca Strait.

2. Australia—strengthening strategic and technological resilience



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1. PACTS promotes cooperation in cyber security, critical technologies, defence research and diversified supply chains.
2. The CSIR-TKDL agreement allows Australian patent officials to check Indian traditional knowledge, preventing biopiracy and protecting India's intellectual heritage.
3. Such cooperation reduces dependence on concentrated supply chains and supports a secure, rules-based Indo-Pacific.

Thus, India combines regional goodwill with hard strategic capacity, making its Indo-Pacific engagement both inclusive and resilient.

Answer 2:

These developments suggest that India is not building isolated assets. They broadly reflect a doctrine of **comprehensive national power**, centred on *Atmanirbhar Bharat*, strategic autonomy and inclusive development.

Evidence of a coherent approach

- **Technological sovereignty:** The CG Semi OSAT facility strengthens domestic chip packaging and testing. Semiconductors are vital for civilian electronics, communication systems, missiles and warships, linking industrial policy with national security.
- **Integrated deterrence:** The Pinaka long-range guided rocket adds accurate stand-off firepower, while INS Mahendragiri strengthens sea control, air defence and anti-submarine capability. Together, they support indigenous defence and India's Indo-Pacific role.
- **Economic-security linkage:** Viksit UDAN seeks to connect smaller cities and remote regions. Better connectivity expands markets, tourism, investment and state presence, making internal inclusion a foundation of national strength.
- Programmes such as the India Semiconductor Mission, defence indigenisation and PM Gati Shakti further indicate a common strategic direction.

However, major structural gaps remain

- Dependence continues in semiconductor machinery, materials, aircraft engines, sensors and some naval systems.
- Low research spending, skill shortages and weak industry-university links restrict innovation.
- Coordination among ministries remains fragmented, often producing schemes without common targets.
- Nearly half of earlier UDAN routes were reportedly discontinued, raising questions over commercial viability.
- Defence projects still face delays, limited private-sector depth and inadequate export scale.

Thus, India possesses the **building blocks** of a national power doctrine, but needs stronger institutions, sustained financing and deeper domestic technology to convert parallel achievements into lasting strategic power.





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WEEK 01 COMPLETE

WEEK 02 BEGINS

11–17 JULY 2026

Turn the page to begin.



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SEMICON 2.0 — CABINET APPROVES LONG-TERM SEMICONDUCTOR POLICY

Ministry: Ministry of Electronics & IT / India Semiconductor Mission

PIB Date: 15th July 2026

Easy Explanation

The original India Semiconductor Mission (ISM) was launched in 2021 with Rs 76,000 crore – a big number, but it was a single-term commitment with no guaranteed policy continuity beyond that outlay. The semiconductor industry is different from most: it requires 10-15 years of consistent investment before returns materialise, and companies will only commit if they are certain government policy will not change after one budget cycle. Taiwan built TSMC over 40 years of consistent state support. South Korea built Samsung's chip empire through decades of sustained government-industry partnership. Both countries provided not just money, but regulatory certainty, infrastructure, and skilled manpower pipelines. Semicon 2.0 – approved by the Union Cabinet on 15th July – addresses exactly this gap. It is not just an extension of ISM funding; it is a long-term policy framework that commits India to sustained semiconductor sector support beyond the current parliamentary term, with rolling 10-year incentive windows, automatic incentive renewal for performing units, a dedicated semiconductor workforce development mission (targeting 85,000 trained semiconductor engineers by 2030), and a sovereign chip design programme for defence and critical applications. The approval came the same day as the Mobile Phone Manufacturing Scheme (MPMS) – both together signal that India is moving from 'electronics assembly nation' to 'electronics manufacturing and design nation.'

Key Terms:

Term	Definition
Semicon 2.0	Long-term semiconductor policy framework; Cabinet approved July 15; provides rolling 10-year incentive certainty; successor to India Semiconductor Mission (ISM)
ISM (India Semiconductor Mission)	Rs 76,000 crore scheme launched 2021; three pillars – fabs, OSAT, chip design; CG Semi OSAT (Week 6) is first output
Rolling Incentive Window	Incentives automatically renewed for 10-year cycles if performance benchmarks met; removes policy discontinuity risk for long-gestation semiconductor investments



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Sovereign Chip Design	Government-funded chip design programme for defence and critical national infrastructure; ensures India is not dependent on foreign chips for sensitive systems
85,000 Semiconductor Engineers	Semicon 2.0 workforce target by 2030; 30 IITs, NITs, and engineering colleges to offer semiconductor design and fabrication programmes
CHIPS Act parallel	USA's CHIPS and Science Act (2022, \$52 billion); EU Chips Act (2023, €43 billion); Semicon 2.0 places India in the same global race for chip sovereignty

Important Points for UPSC:

- ISM 2021 vs Semicon 2.0: ISM was a time-bound financial commitment; Semicon 2.0 is a permanent policy architecture with rolling incentive certainty – the difference between a scheme and a doctrine
- Semiconductor investment timeline: A fab takes 3-5 years to build, 5 years to ramp production, 10+ years to recoup investment; policy certainty over 15+ years is non-negotiable for investors – Semicon 2.0 provides this
- Current pipeline: Tata Electronics fab (Assam, 28nm chips), Micron ATMP (Sanand, Gujarat), CG Semi OSAT (Sanand) – all under ISM; Semicon 2.0 provides the next wave of investments
- Sovereign chip mandate: India's defence systems, critical power grid controllers, railway safety systems – all currently use imported chips; a supply disruption (like China restricting exports) would be catastrophic; sovereign chip design addresses this
- Workforce gap: India has 20,000 semiconductor engineers currently; needs 3 lakh by 2030 to support a full chip ecosystem; Semicon 2.0's 85,000 target is a first step
- Global context: TSMC (Taiwan) controls 92% of world's most advanced chips; Samsung (South Korea) is the only other player; if either is disrupted (Taiwan conflict, natural disaster), global electronics collapses; India's chip push is strategic insurance
- Connection to MPMS: Mobile phones = India's largest electronics export (\$20 billion); phones use chips; Semicon 2.0 + MPMS together = India making both the chips and the devices

MOBILE PHONE MANUFACTURING SCHEME (MPMS) – CABINET APPROVED

Ministry: Ministry of Electronics & IT

PIB Date: 15th July 2026



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Easy Explanation

India went from importing almost all its mobile phones to becoming the world's second-largest mobile phone manufacturer in less than a decade. This happened because of PLI (Production-Linked Incentive) for mobile phones, launched in 2020. Apple's contract manufacturers – Foxconn, Wistron (now Tata Electronics), Pegatron – set up large assembly plants in Tamil Nadu, Karnataka, and Andhra Pradesh. Samsung expanded its Noida plant. By 2025-26, India exported Rs 1.28 lakh crore worth of mobile phones – nearly 30% of total electronics exports. But PLI had a design flaw: it rewarded production volume but not technology depth. Companies assembled phones in India using imported components – the screens, processors, cameras, and batteries all came from China, Taiwan, or South Korea. India was an 'assembly nation' not a 'manufacturing nation.' MPMS – Mobile Phone Manufacturing Scheme – is the next step. It specifically incentivises companies to manufacture components in India, not just assemble them. Targeted components: display modules, camera modules, battery cells (linking to ACC PLI), PCBAs (Printed Circuit Board Assemblies), and chargers. For each component manufactured in India rather than imported, companies get additional incentives. This pushes the value addition from the current 15-18% to a target of 35-40% by 2030.

Key Terms:

Term	Definition
MPMS	Mobile Phone Manufacturing Scheme – Cabinet approved July 15; incentivises domestic component manufacturing, not just assembly; targets 35-40% value addition
PLI for Mobile Phones	Production-Linked Incentive scheme 2020; attracted Apple (via Foxconn, Tata), Samsung; India now world's 2nd largest mobile phone manufacturer
Value Addition	Percentage of a product's final price created domestically; India's mobile phones currently at 15-18% value addition; MPMS targets 35-40%
PCBA	Printed Circuit Board Assembly – the 'brain' of a smartphone; contains processor, RAM, connectivity chips; currently 100% imported; MPMS specifically incentivises domestic PCBA
Display Module	The screen assembly of a phone; Apple's iPhones use Samsung/LG displays; MPMS incentivises India-made display modules to reduce this import



**Electronics exports target**

India targets \$300 billion electronics exports by 2030; mobile phones are the biggest component; MPMS is the next policy lever toward this target

Important Points for UPSC:

- India mobile phone exports: FY2020-21: Rs 25,000 crore → FY2024-25: Rs 1.28 lakh crore → Target FY2030: Rs 4+ lakh crore – exponential growth driven by PLI
- Apple in India: iPhone 15, 16, and 16e assembled in India (Tamil Nadu); Apple now manufactures 15%+ of its global iPhones in India; India becoming an Apple supply chain anchor
- Component import dependence: 82% of components in 'Made in India' phones are still imported; MPMS directly targets this structural weakness – domestic components = more jobs + higher value
- Camera module opportunity: India imports 100% of camera modules; Foxconn and Samsung are exploring India-based camera module plants under MPMS incentive framework
- Battery cell linkage: MPMS + ACC PLI (Advanced Chemistry Cells from Week 7) together = India making both batteries and the devices that use them; integrated electronics manufacturing stack
- Employment dimension: Full-stack electronics manufacturing (components + assembly) is 5-8x more labour-intensive than assembly alone; MPMS could create 15-20 lakh additional jobs by 2030
- China+1 strategy: Global companies diversifying away from China; India is the primary beneficiary; but China+1 in assembly only is not enough – MPMS pushes India toward China+1 in components too

INDIA'S FIRST HYDROGEN FUEL CELL TRAIN — GREEN RAIL MOBILITY

Ministry: Ministry of Railways / RDSO

PIB Date: 16th July 2026

Easy Explanation

A conventional electric train gets its power from overhead wires or a third rail – it needs electrical infrastructure along every kilometre of track. A diesel train carries its fuel but burns it and emits pollution. A hydrogen fuel cell train carries hydrogen as fuel, converts it to electricity inside a fuel cell (hydrogen + oxygen from air = electricity + water), and runs on that electricity – emitting nothing but water vapour from the exhaust. India's first Hydrogen Fuel Cell Train has been developed by Indian Railways' Research Design and Standards Organisation (RDSO) in collaboration with industry. It can carry approximately 2,600 passengers, has a range of 1,000 km on a single hydrogen fill, reaches speeds of 100 km/h, and crucially – it can run on non-electrified tracks, which still make up a large portion of India's railway network. The PIB



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backgrounder this week outlines the technology, the pilot routes being considered (heritage lines, non-electrified branch lines, hill stations), and the vision of making India a leader in hydrogen-powered mass transit. The significance goes beyond railways: if India can develop and manufacture hydrogen fuel cell trains domestically, the same fuel cell technology transfers to hydrogen buses, trucks, and eventually ships – creating a complete green mobility ecosystem.

Key Terms:

Term	Definition
Hydrogen Fuel Cell	Device that converts hydrogen and oxygen into electricity through electrochemical reaction; byproduct is only water; no combustion, no emissions
RDSO	Research Designs and Standards Organisation – Indian Railways' technical arm; developed hydrogen fuel cell train technology in collaboration with Indian industry
Proton Exchange Membrane (PEM)	Type of fuel cell used in the train; efficient at low temperatures; proven technology in automotive (Toyota Mirai, Hyundai Nexo); adapted for rail
Range: 1,000 km	Single hydrogen fill allows 1,000 km operation – covers Delhi-Mumbai distance; no need for frequent refuelling stops
Non-electrified track advantage	40%+ of India's 68,000 km railway network is non-electrified; hydrogen trains can run on these without expensive electrification infrastructure
Green Hydrogen Mission link	India's National Green Hydrogen Mission (5 MMT by 2030); hydrogen trains create domestic demand that makes the Mission's supply targets economically viable
Germany's Coradia iLint	World's first commercial hydrogen passenger train; operated in Germany since 2022; India's train is inspired by this but indigenously developed for Indian conditions

Important Points for UPSC:

- Indian Railways: 68,000 km network; 40%+ non-electrified; 2.3 crore passengers daily; electrification of non-electrified routes costs Rs 1-2 crore/km; hydrogen trains offer a cheaper alternative for low-density routes





- Technology specs: 2,600 passenger capacity; 100 km/h speed; 1,000 km range; PEM fuel cells; hydrogen stored in high-pressure onboard tanks (350-700 bar); zero direct emissions
- Pilot routes under consideration: Kalka-Shimla heritage line (UNESCO World Heritage), Darjeeling Himalayan Railway, certain non-electrified branch lines in Rajasthan and Gujarat
- Indian Railways' 2030 net-zero target: IR committed to net-zero carbon emissions by 2030 – one of world's first major railways to commit to this; hydrogen trains for non-electrified routes are a critical tool
- RDSO's indigenisation: Fuel cell stack, hydrogen storage system, power management unit – key components developed with Indian industry partners; not fully imported technology unlike Germany's Alstom Coradia iLint
- Technology spillover: Fuel cell technology from train programme can be adopted for hydrogen buses (Pune-Mumbai hydrogen bus pilot already running), hydrogen trucks for freight, and port equipment – scale effect
- Economics: Hydrogen train is currently more expensive than diesel per km operated; viable when green hydrogen cost falls below Rs 200/kg (currently Rs 350-400/kg); Mission targets Rs 150/kg by 2030

NIPU-2026 — NATIONAL INVESTMENT POLICY FOR UREA: ATMANIRBHAR FERTILISER

Ministry: Ministry of Chemicals and Fertilizers / Department of Fertilizers

PIB Date: 15th July 2026

Easy Explanation

Urea is the single most important agricultural input in India after water and seeds. It provides nitrogen to the soil, which is essential for plant growth. India uses 35 million tonnes of urea every year – making it the world's second-largest consumer after China. Of this, approximately 20% (7 million tonnes) is imported, primarily from the Middle East, China, and Eastern Europe. This import dependence costs Rs 30,000-40,000 crore annually in foreign exchange and creates vulnerability – if geopolitical tensions disrupt supply (as happened during the Russia-Ukraine war, when urea prices tripled), Indian farmers face shortages and the government faces a fiscal shock from higher subsidy bills. The National Investment Policy for Urea-2026 (NIPU-2026), approved by Cabinet on 15th July, is India's strategy to become fully self-sufficient in urea by 2030. Its key components: reviving and modernising five public sector urea plants that are currently old and inefficient (the Gorakhpur, Sindri, Barauni, Talcher, and Ramagundam plants – all being revived under different stages); attracting private investment in new urea capacity through a guaranteed gas price framework (urea plants run on natural gas, and gas price uncertainty was a major barrier to private



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investment); and linking new urea plants to coal gasification feedstock (from the Coal Gasification Scheme covered in Week 6) to reduce dependence on imported gas.

Key Terms:

Term	Definition
NIPU-2026	National Investment Policy for Urea-2026; Cabinet approved July 15; targets urea self-sufficiency by 2030; 5 PSU plant revivals + private investment framework
Urea subsidy	Government caps urea MRP at Rs 266.50/bag (45 kg) regardless of production cost; pays subsidy to manufacturers for the difference – Rs 1.5-2 lakh crore annually
PSU Urea Plants Revival	Gorakhpur (UP), Sindri (Jharkhand), Barauni (Bihar), Talcher (Odisha), Ramagundam (AP) – all being revived/modernised; together add 6.3 million tonnes of domestic capacity
Gas Price Framework	NIPU-2026 provides guaranteed natural gas price for urea manufacturers; removes price uncertainty that previously deterred private investment in new urea plants
Coal Gasification link	New urea plants can use syngas from coal gasification (Week 6 brief) as feedstock instead of natural gas; reduces import dependence doubly – no imported gas AND no imported urea
Neem-Coated Urea	Government mandated 100% neem coating of urea since 2015; slows nitrogen release, reduces pilferage to non-agricultural uses; NIPU-2026 continues this standard

Important Points for UPSC:

- India's urea production: 28 million tonnes/year domestically; imports 6-8 million tonnes; NIPU-2026 adds 8-10 million tonnes new capacity to achieve full self-sufficiency
- 5 PSU plant revivals: Gorakhpur (Uttar Pradesh, 12.7 lakh MT), Sindri (Jharkhand, 12.7 lakh MT), Barauni (Bihar, 12.7 lakh MT), Talcher (Odisha, coal gasification-based, 12.7 lakh MT), Ramagundam (Andhra Pradesh, 12.7 lakh MT) – all under revival under HURL and NFL/RCF
- Urea subsidy burden: India spends Rs 1.5-2 lakh crore annually on fertiliser subsidies; urea MRP frozen at Rs 266.50/45kg bag since 2012 despite production costs of Rs 1,200-1,500/bag – Rs 1,000+ government subsidy per bag





- Gas price problem: Urea plants need natural gas as feedstock; India imports 45% of its gas; price volatility makes urea plant investment risky; NIPU-2026's guaranteed gas price removes this barrier
- Talcher significance: Uses coal gasification route – syngas from Odisha coal → ammonia → urea; reduces dependence on gas imports; connects NIPU-2026 to Coal Gasification Scheme (Week 6)
- Strategic import reduction: Russia-Ukraine war 2022 caused urea prices to spike from \$250/tonne to \$900/tonne; India's import bill tripled in one year; NIPU-2026 directly addresses this strategic vulnerability
- Nano urea: IFFCO's liquid nano urea (500 ml bottle replaces one 45 kg bag); if scaled, reduces urea demand by 50%; NIPU-2026 includes provision for nano urea adoption incentives alongside conventional capacity

INDIA-UK CETA — IN FORCE FROM 15TH JULY 2026

Ministry: Ministry of Commerce & Industry

PIB Date: 15th July 2026

Easy Explanation

We covered the India-UK Comprehensive Economic and Trade Agreement (CETA) in detail in Week 3 – when it was announced that it would come into force on July 15. Today is that day. The agreement is now live. This article focuses not on what was agreed (covered in Week 3) but on what 'entering into force' means in practice and what changes from today. From July 15, 2026: Indian exporters of textiles, leather, footwear, engineering goods, pharmaceutical products, and seafood can access the UK market at zero duty – compared to tariffs of 9-12% on most items previously. UK exporters of Scotch whisky now face a tariff of 75% in India (down from 150% – a 50% cut in day 1), falling further to 40% over 10 years. British cars face lower tariffs in India (100% down to 10% over 10 years). Indian IT and professional services firms operating in the UK gain easier market access. And crucially for Indian professionals – the Double Contribution Convention (DCC), also entering into force today alongside CETA, means Indian workers temporarily posted in the UK are exempt from paying into both India and UK social security systems simultaneously. They pay only in India for up to 5 years. This saves each temporarily posted professional approximately £3,000-5,000 per year. India has approximately 5 lakh professionals temporarily working in the UK annually – the aggregate saving is enormous.

Key Terms:

Term	Definition
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CETA in force date	15th July 2026 – India-UK Comprehensive Economic and Trade Agreement enters into force; signed London July 24, 2025; 14 rounds of negotiations over 3 years
Tariff on Day 1	99% of Indian goods exports get duty-free UK access from today; Indian textiles (previously 9-12% tariff) now zero; UK Scotch whisky tariff cut from 150% to 75%
Double Contribution Convention (DCC)	Also enters force July 15; Indian professionals temporarily in UK pay social security in India only (not both); exemption period 5 years; saves ~£3,000-5,000/person/year
Rules of Origin	Products must have sufficient India-based value addition to qualify for CETA tariff rates; 'Made in India' criteria prevent third-country transshipment through India to access UK market
Scotch Whisky trajectory	150% → 75% (Day 1, July 15) → 40% (Year 10); India is world's largest Scotch whisky market by volume; UK industry estimates 50%+ growth in India sales over next decade
Services chapter	137 UK services sectors opened to Indian suppliers; IT, consulting, architecture, engineering, education – Indian firms gain preferential treatment vs non-CETA countries

Important Points for UPSC:

- CETA timeline: Negotiations began 2022 → concluded May 2025 → signed July 24, 2025 → in force July 15, 2026 – a 14-month gap between signing and entry into force (needed for parliamentary/legal processes in both countries)
- India's trade agreements history: India has FTAs with ASEAN, Japan, South Korea, UAE, Mauritius, EFTA (signed 2024) – CETA with UK is India's largest FTA by economic size of partner country
- UK post-Brexit trade strategy: After leaving EU in 2020, UK needed new trade agreements; India-UK CETA is among its most significant – UK gains preferential access to 1.4 billion consumer market
- DCC significance: 5 lakh Indian IT professionals in UK annually; Rs 3,000-5,000 per person per year saved = Rs 1,500-2,500 crore aggregate annual benefit to Indian professionals and their employers
- Pharmaceutical access: Indian generic pharma companies gain easier regulatory recognition in UK; significant given India's 'pharmacy of the world' status and UK's NHS drug procurement





- Sensitive exclusions: India excluded certain agriculture items (rice, wheat, sugar) from tariff concessions; UK excluded dairy from zero-tariff treatment to protect British farmers – both sides protected politically sensitive sectors
- India-EU FTA: Announced for 2026 signing (from PM Modi's G7 Evian visit, Week 3); CETA with UK serves as the template – same structure, similar approach to services, investment, and Rules of Origin

PM MODI NEW ZEALAND VISIT — STRATEGIC PARTNERSHIP ROADMAP TO 2030

Ministry: Prime Minister's Office / Ministry of External Affairs

PIB Date: 11th July 2026

Easy Explanation

New Zealand is a country of 5 million people at the bottom of the Pacific Ocean – not an obvious priority for Indian diplomacy. But PM Modi's July 11 visit – the first by an Indian PM in over two decades – was strategically deliberate. New Zealand is a Five Eyes intelligence sharing partner (with USA, UK, Australia, Canada), a member of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) that India has been watching carefully, a major dairy exporter (relevant to India's own dairy ambitions), and a Pacific island nation that sits at the intersection of Indo-Pacific and Pacific Islands Forum dynamics where China is expanding rapidly. The India-New Zealand Strategic Partnership Roadmap to 2030, signed at the summit, covers trade (bilateral trade target \$3 billion by 2030, up from \$1.1 billion), education (mutual recognition of degrees, Indian students – 30,000 in NZ – given clearer pathways), agriculture and dairy (NZ's Fonterra and other dairy companies to partner with Indian cooperatives on value-added products), and cyber and critical technology cooperation (NZ is a Five Eyes partner, making this dimension significant). The NCVET-ASQA skills quality assurance MoU – recognising each other's vocational qualifications – was a specific deliverable that came out of the visit.

Key Terms:

Term	Definition
India-NZ Strategic Partnership Roadmap 2030	Bilateral framework signed July 11; trade target \$3 billion by 2030 (up from \$1.1 billion); covers trade, education, dairy, cyber, critical technology
Five Eyes	Intelligence sharing alliance: USA, UK, Canada, Australia, New Zealand; NZ's membership makes India-NZ cyber cooperation strategically significant



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CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership – 11-nation Pacific trade agreement; New Zealand is a member; India has observer interest but not yet joined
NCVET-ASQA MoU	National Council for Vocational Education and Training (India) + Australian Skills Quality Authority (Australia/NZ quality body); mutual recognition of vocational qualifications
India-NZ trade composition	India exports: pharma, textiles, chemicals, IT services; NZ exports: dairy, wool, timber, seafood; current trade \$1.1 billion – large gap from potential given complementarity
Pacific Islands Forum	Regional organisation of Pacific island nations; China has been aggressively courting Pacific islands; NZ is a key partner and India is deepening Pacific engagement through India-NZ partnership

Important Points for UPSC:

- Last Indian PM visit to NZ: Over 20 years ago; relationship was largely driven by Indian diaspora (2.5 lakh people of Indian origin in NZ); Modi visit elevates it to formal strategic partnership
- NZ dairy + India: New Zealand is world's largest dairy exporter; India's Operation Flood built one of the world's largest dairy cooperatives (AMUL); partnership could focus on value-added dairy (cheese, whey protein) rather than competing in basic dairy
- 30,000 Indian students in NZ: Third-largest international student community in NZ; education MOU provides clearer pathways for degree recognition and post-study work rights
- Five Eyes significance: India is not a Five Eyes member but bilateral cyber and critical technology cooperation with NZ means India benefits from Five Eyes' collective threat intelligence through NZ channel
- CPTPP dimension: NZ is urging India to engage with CPTPP; India has concerns about agricultural market access clauses; Strategic Partnership Roadmap creates a basis for ongoing dialogue on this
- PM Modi's three-nation Pacific tour: Indonesia (July 7) + Australia (July 9) + New Zealand (July 11) – all in one week; demonstrates India's 'Act East and Act Pacific' strategy operating simultaneously
- India's Pacific islands engagement: 14 Pacific island nations; China has signed security agreements with Solomon Islands, Kiribati; India launched 12-point Pacific engagement plan in 2023; NZ partnership supports India's Pacific outreach





NITI AAYOG BIOECONOMY ROADMAP 2035 — INDIA AS GLOBAL BIOECONOMY POWERHOUSE

Ministry: NITI Aayog / Ministry of Science & Technology / DBT

PIB Date: 16th July 2026

Easy Explanation

India's bioeconomy grew from \$10 billion (2014) to \$190 billion (2026) — a 19x increase covered in Week 3's brief. This week, NITI Aayog released a 10-year Bioeconomy Roadmap targeting \$500 billion by 2035 — making India's bioeconomy larger than the current GDP of many G20 nations. The roadmap is significant because it moves beyond cataloguing past growth to defining specific policy interventions, investment targets, and governance reforms for the next decade. The roadmap identifies six priority sectors: Biopharmaceuticals (making India the world's top generic and biosimilar drug producer); Industrial Biotechnology (using microorganisms to produce chemicals, materials, and fuels instead of petroleum — bioplastics, biosurfactants, bio-based materials); Agricultural Biotechnology (GM crops, precision fermentation for food, biofortification); Marine Biotechnology (exploiting India's 7,500 km coastline's biological resources); Genomics and Precision Medicine (India-specific genomic database, affordable diagnostics, personalised treatments); and Bioenergy (ethanol, biogas, algae-based fuels). The roadmap calls for creating 50 dedicated Biomanufacturing Hubs across India by 2030 (Hyderabad, Pune, Bengaluru, Faridabad as anchors), a National Bioresource Registry, and an Indian Biological Data Centre — India's own GenBank equivalent where all Indian biological research data must be deposited.

Key Terms:

Term	Definition
Bioeconomy Roadmap 2035	NITI Aayog 10-year plan; target \$500 billion bioeconomy by 2035 (from \$190 billion in 2026); six priority sectors; 50 biomanufacturing hubs by 2030
Biosimilars	Biological medicines that are highly similar to already-approved reference biologics; India's strength in generic pharma extends to biosimilars; global biosimilar market \$50 billion and growing
Industrial Biotechnology	Using biological systems (microorganisms, enzymes) to make chemicals, materials, fuels; replaces petroleum-based processes; bioplastics, biosurfactants, bio-based textiles



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Precision Fermentation	Using engineered microorganisms to produce proteins, fats, and other food compounds; produces dairy proteins without cows, meat proteins without slaughter – disrupting food systems
Indian Biological Data Centre (IBDC)	India's own biological data repository; modelled on NCBI/GenBank (USA); all Indian-funded research biological data must be deposited here; data sovereignty for biological assets
BioE3 Policy	Biotechnology for Economy, Environment, Employment – India's biotech manufacturing policy announced 2024; Roadmap 2035 is the 10-year implementation framework for BioE3

Important Points for UPSC:

- \$500 billion target by 2035: India's bioeconomy (\$190 billion in 2026) needs to grow 2.6x in 9 years; requires sustained 12-15% annual growth; achievable given current trajectory and policy support
- Six sectors in detail: Biopharmaceuticals (\$120 billion target), Industrial Biotech (\$100 billion), AgBiotech (\$80 billion), Marine Biotech (\$50 billion), Genomics/Precision Medicine (\$100 billion), Bioenergy (\$50 billion)
- 50 Biomanufacturing Hubs by 2030: Dedicated zones with shared bioreactor infrastructure, regulatory fast-track, biosafety level (BSL) labs, cold chain logistics – reduces entry cost for biotech startups
- National Bioresource Registry: Comprehensive catalogue of India's biological diversity – microorganisms, plant genetic resources, marine organisms – with ABS rights mapped; connects to TKDL (Week 7) and Mizoram repository (Week 6)
- Genome India Project: 10,000 Indian genomes sequenced; IBDC will house all future genomic data from Indian research; ensures India's genetic data is stored in India, not on foreign servers
- Synthetic biology governance: Roadmap calls for a dedicated Synthetic Biology Regulatory Authority – separate from existing drug/food regulators – to handle novel bio-based products; connects to Engineering Biology graduation course (this week)
- Employment target: 50 lakh direct bioeconomy jobs by 2035 (from 30 lakh currently); high-quality, knowledge-economy jobs concentrated in Tier 2 cities with biomanufacturing hubs

INDIA-AUSTRALIA CIVIL NUCLEAR COOPERATION — PIB BACKGROUND



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Ministry: Department of Atomic Energy / Ministry of External Affairs

PIB Date: 14th July 2026

Easy Explanation

India needs nuclear energy for three reasons: it has 361 billion tonnes of coal but burning it is environmentally unsustainable; its solar and wind energy are intermittent (the sun doesn't always shine, the wind doesn't always blow); and nuclear provides the stable, carbon-free baseload power that a modern economy needs 24/7. Currently, nuclear provides only 3% of India's electricity – far below France (70%), South Korea (28%), or even China (5% but growing fast). The problem: India's nuclear programme was isolated after the 1974 Pokhran-I nuclear test – other countries refused to sell uranium or nuclear technology to India. The 2008 India-US Civil Nuclear Agreement (123 Agreement) broke this isolation – it gave India access to global civil nuclear commerce without signing the NPT (Non-Proliferation Treaty), because the Nuclear Suppliers Group (NSG) gave India a special waiver. Australia is critically important in this framework: it has the world's largest uranium reserves (30% of global reserves), and it started selling uranium to India under a bilateral nuclear cooperation agreement signed in 2014 and ratified in 2016. The PIB backgrounder released this week, timed with PM Modi's Australia visit outcomes, outlines how the India-Australia civil nuclear partnership has deepened: uranium supply agreements are now long-term (2031-2041 window), joint research on thorium reactor technology (India's Stage 3 nuclear programme) has begun, and Australian universities are partnering with DAE for nuclear engineering education.

Key Terms:

Term	Definition
Civil Nuclear Cooperation Agreement (CNCA)	Bilateral agreement allowing nuclear trade (uranium, technology) between India and Australia; signed 2014, ratified 2016; PIB backgrounder covers deepening under PM Modi's visit
NSG Waiver 2008	Nuclear Suppliers Group gave India a special exemption to access global civil nuclear commerce without signing NPT; made India-Australia uranium trade possible
Australia's uranium reserves	30% of world's uranium reserves (580,000 tonnes); India is a major buyer; long-term supply contracts (2031-2041) announced in Australia visit outcomes
India's 3-Stage Nuclear Programme	Stage 1: PHWRs (natural uranium) → Stage 2: FBRs (plutonium) → Stage 3: AHWRs (thorium); Australia partnership covers thorium research (Stage 3)



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Thorium advantage	India has world's 3rd largest thorium reserves (846,000 tonnes); Stage 3 will use thorium as fuel – making India energy-independent; AHWR (Advanced Heavy Water Reactor) under development at BARC
NPT vs India	India never signed NPT (1968); maintains nuclear deterrent; but NSG waiver allows India to participate in civil nuclear commerce – a unique arrangement reflecting India's non-proliferation record

Important Points for UPSC:

- India's nuclear capacity: 7,480 MW from 24 reactors (22 PHWRs + 2 LWRs); government target 100,000 MW by 2047 – requiring massive expansion from current 3% to 25% of electricity mix
- Australia uranium supply: Australia supplies uranium to India under strict IAEA safeguards; uranium goes only to civilian reactors; India maintains separation plan between civilian and military nuclear programme
- Thorium research: Australia's ANSTO (Australian Nuclear Science and Technology Organisation) + India's BARC joint research on thorium fuel cycle; Australia has thorium deposits too – mutual benefit
- PFBR connection: India's Prototype Fast Breeder Reactor (Kalpakkam) will produce plutonium needed for Stage 2; once Stage 2 is operational, Stage 3 thorium reactors become feasible – Australia partnership accelerates this timeline
- Nuclear education MoU: Australian universities + DAE institutions; 200 Indian nuclear engineers to study in Australia annually; addresses India's critical shortage of trained nuclear engineers for 100,000 MW target
- France parallel: France also supplies uranium to India and cooperates on the Jaitapur Nuclear Power Plant (6 EPR reactors, 9,900 MW) – India's civil nuclear partnerships with Australia and France are the two most important
- Geopolitical context: Both India and Australia are concerned about China's nuclear buildup; civil nuclear cooperation deepens the Australia-India Comprehensive Strategic Partnership's security dimension

INS MALVAN — ASW SHALLOW WATER CRAFT COMMISSIONED

Ministry: Ministry of Defence / Indian Navy

PIB Date: 16th July 2026

Easy Explanation



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We covered INS Agray (5th Arnala-class Anti-Submarine Warfare Shallow Water Craft) in Week 4, and INS Mahendragiri (6th Project 17A stealth frigate) in Week 6. This week, the Indian Navy commissions INS Malvan – another Arnala-class ASW Shallow Water Craft – at the Southern Naval Command in Kochi. This pattern of near-weekly naval commissioning is not coincidental – it reflects the acceleration of India's indigenous warship production pipeline, with GRSE Kolkata and L&T Shipbuilding delivering vessels from programmes that were initiated 5-8 years ago and are now reaching commissioning stage simultaneously. INS Malvan is named after the historic coastal town and naval base in Maharashtra's Sindhudurg district – an area with deep Maratha naval history (Chatrapati Shivaji Maharaj built the legendary Sindhudurg fort there to defend against Portuguese naval power). ASW Shallow Water Craft are designed specifically for hunting submarines in India's shallow coastal waters, harbours, and approaches – where large frigates cannot manoeuvre effectively. They use dunking sonar, rockets, and lightweight torpedoes. With both Pakistan and China operating increasingly capable submarine fleets in India's maritime neighbourhood, the Arnala-class represents India's asymmetric response – multiple small, fast, capable anti-submarine hunters deployed along the entire coastline.

Key Terms:

Term	Definition
INS Malvan	Arnala-class Anti-Submarine Warfare Shallow Water Craft; commissioned Southern Naval Command, Kochi; named after Sindhudurg coastal town, Maharashtra
Arnala-class ASW SWC	Series of 8 indigenous anti-submarine warfare vessels; built by L&T Shipbuilding (4) and GRSE Kolkata (4); designed for shallow coastal waters; waterjet propulsion
Dunking Sonar	Helicopter-deployed sonar lowered into water to detect submarines; ASW SWC operates in conjunction with naval helicopters using dunking sonar for submarine detection
Southern Naval Command	Headquartered in Kochi; primary training command; also responsible for Lakshadweep and southern maritime approaches; INS Malvan will be based here
Sindhudurg naval history	Chatrapati Shivaji Maharaj built Sindhudurg fort (1664) on a sea island; established Maratha navy to counter Portuguese; naming INS Malvan honours this maritime heritage





Shallow Water Anti-Submarine Warfare

Hunting submarines in water less than 200 metres deep; more difficult than deep-water ASW because sound behaves differently in shallow water; specialised equipment required

Important Points for UPSC:

- Arnala-class programme: 8 vessels total; L&T Shipbuilding (Kattupalli, TN) building 4; GRSE Kolkata building 4; INS Malvan is among the first from the Southern Naval Command allocation
- Technical specs: Displacement ~750 tonnes; waterjet propulsion (allows very shallow water operations, as low as 2-3 metres); speed 25 knots; crew 58; range 1,800 nautical miles; sonar, torpedo tubes, anti-submarine rockets
- Pakistan submarine threat: Pakistan operates 5 submarines including PNS Khalid-class (Agosta-90B) and Chinese-supplied Type 039B (Yuan-class); these can threaten Indian naval ports and shipping lanes
- China submarine presence: PLAN submarines have been detected in Indian Ocean with increasing frequency; China's String of Pearls naval strategy uses submarine patrols as deterrence; Indian coastal ASW is a direct counter
- Cost effectiveness: Arnala-class ASW SWC costs approximately Rs 300-400 crore each vs a frigate at Rs 4,000-5,000 crore; deploying 8 ASW SWCs covers more coastline at far lower cost than equivalent frigates
- Commissioning velocity: INS Agray (Week 4, June 2026) → INS Mahendragiri (Week 6, July 11) → INS Malvan (Week 7, July 16) – three warship commissionings in 6 weeks; unprecedented in Indian naval history

CRITICAL MINERALS — 8TH TRANCHE: 20 BLOCKS AUCTIONED, CUMULATIVE 76

Ministry: Ministry of Mines

PIB Date: 15th July 2026

Easy Explanation

Critical minerals block auctions have been covered in Week 4 (7th tranche, 56 cumulative blocks) and now this week brings the 8th tranche — 20 more blocks auctioned, bringing the cumulative total to 76 blocks out of 88 offered (86% success rate, up from 63% in the 7th tranche). The acceleration in success rate is significant: it shows increasing industry confidence in the auction mechanism and in critical minerals as an investment class. The 8th Tranche is notable for two specific reasons. First, it includes the first-ever auction of Vanadium



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blocks – a critical mineral used in Vanadium Redox Flow Batteries (VRFB), a type of large-scale energy storage system that is emerging as a competitor to lithium batteries for grid storage. Vanadium batteries can store energy for hours without degradation – ideal for balancing India's intermittent solar and wind power. Second, the 8th tranche includes Platinum Group Elements (PGEs) blocks – palladium, platinum, rhodium – which are essential for automotive catalytic converters and emerging hydrogen fuel cell applications. India had virtually zero domestic PGE production before this programme. The Ministry also announced India Mining Week 2026 (November 15-17) to attract global mining investment – the first dedicated national mining investment event of this scale.

Key Terms:

Term	Definition
8th Tranche	20 critical and strategic mineral blocks auctioned; July 15; cumulative total 76 of 88 blocks (86% success rate); includes first-ever Vanadium and PGE blocks
Vanadium Redox Flow Battery (VRFB)	Large-scale battery using vanadium compounds; can store electricity for hours; ideal for grid storage from solar/wind; vanadium blocks now auctioned in India for first time
Platinum Group Elements (PGEs)	Platinum, palladium, rhodium, iridium, osmium, ruthenium; essential for catalytic converters, fuel cells, industrial catalysts; 80% of world's PGEs from South Africa
Cumulative 76 blocks	76 of 88 offered blocks auctioned (86% success rate); Week 4 covered 56 blocks (63% success rate); 23 percentage point improvement shows auction mechanism maturing
India Mining Week 2026	First dedicated national mining investment event; November 15-17; Ministry of Mines initiative to attract global mining companies to India's untapped mineral potential
Strategic Minerals	Minerals critical for defence applications – tungsten, titanium, niobium, rhenium; included in 8th tranche alongside critical minerals for clean energy

Important Points for UPSC:

- Critical minerals programme trajectory: Tranche 1 (2023) – low success rate, teething issues → Tranche 7 (June 2026) – 56 blocks, 63% success → Tranche 8 (July 2026) – 76 blocks, 86% success; clear acceleration





- Vanadium blocks: Located primarily in Andhra Pradesh and Rajasthan; vanadium occurs in magnetite iron ores; India imports 100% vanadium currently; domestic blocks reduce this dependence for VRFB applications
- VRFB advantage over lithium: Vanadium batteries do not degrade over thousands of charge cycles (lithium degrades after 2,000 cycles); can discharge 100% of stored energy (lithium safe only to 80%); longer lifetime makes them cheaper over 25 years
- PGE context: South Africa controls 80% of world's PGE production; Russia controls most of the rest; both are geopolitically unreliable for India; domestic PGE production, even modest, reduces this vulnerability
- Catalytic converter link: Every petrol and diesel vehicle in India has a catalytic converter containing palladium and platinum; India's 30 crore vehicle fleet requires continuous PGE imports; domestic PGE production is strategically important
- Hydrogen fuel cell link: PEM fuel cells (used in India's hydrogen train covered in this brief) use platinum as catalyst; scaling hydrogen mobility requires platinum supply security – domestic PGE blocks directly address this
- KABIL (Khanij Bidesh India Ltd): JV of NALCO, HCL, MECL for overseas mineral acquisition; acquired lithium blocks in Argentina, cobalt in Australia; 8th tranche domestic auction + KABIL overseas together form India's critical mineral security strategy

NITI AAYOG INVESTMENT FRIENDLINESS INDEX – STATE RANKING

Ministry: NITI Aayog / DPIIT

PIB Date: 17th July 2026

Easy Explanation

India already has the Ease of Doing Business rankings (by World Bank, discontinued 2021), the State Business Reform Action Plan (BRAP) rankings by DPIIT, the Logistics Ease Across Different States (LEADS) index, the Swachh Survekshan for sanitation, the National Water Award for water management, and the Performance Grading Index for education. Now NITI Aayog has added the Investment Friendliness Index (IFI) – specifically designed to measure how welcoming each state is to new investment from the perspective of an investor, not just a bureaucrat. The distinction matters: BRAP measures whether states have implemented reforms on paper; IFI measures whether investors actually feel the environment is conducive. The IFI assesses states on six dimensions: Policy Stability (how predictable and consistent are state investment policies), Land and Infrastructure (availability of industrial land, utilities, connectivity), Talent and Labour (skill levels, industrial relations, ease of hiring and compliance), Financial Ecosystem (banking access, venture capital presence, credit culture), Market Access (proximity to consumption centres, logistics), and Innovation and



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R&D (number of startups, patents, research institutions). First edition results: Telangana, Tamil Nadu, Karnataka, Gujarat, and Maharashtra lead. UP has shown the biggest improvement from its historical position. Northeastern states remain at the bottom despite improvement.

Key Terms:

Term	Definition
Investment Friendliness Index (IFI)	NITI Aayog's new index measuring state-level investment climate from investor perspective; first edition 2026; 6 dimensions; all 36 states/UTs ranked
BRAP	Business Reform Action Plan – DPIIT's annual ranking of states on implementation of business reforms; reform implementation on paper vs investor experience is IFI's distinction
Policy Stability dimension	Measures how consistent state investment policies are over time; states that frequently change policies or have post-election reversals score lower
Competitive Federalism	NITI Aayog's philosophy of using indices to create competition between states to improve governance; IFI is the latest instrument in this approach
LEADS	Logistics Ease Across Different States index – measures logistical efficiency; separate from IFI but complementary; together they give a comprehensive picture of state economic environment
Investors vs bureaucrats	IFI specifically surveys actual investors for their experience, not just government officials claiming reforms implemented; ground-truth assessment of investment climate

Important Points for UPSC:

- IFI six dimensions with weights: Policy Stability (20%), Land & Infrastructure (20%), Talent & Labour (20%), Financial Ecosystem (15%), Market Access (15%), Innovation & R&D (10%)
- Top performers: Telangana (strong IT + pharma ecosystem), Tamil Nadu (automotive + electronics manufacturing), Karnataka (Bengaluru tech hub), Gujarat (industrial corridor + port access), Maharashtra (financial hub + manufacturing breadth)
- UP improvement: Uttar Pradesh has historically ranked low on investment indices; IFI shows significant improvement on Land & Infrastructure (Defence corridors, expressway network, data centres) and Policy Stability (stable BJP government since 2017)





- Northeast gap: Northeast states rank lowest despite geography (ASEAN connectivity), natural resources, and central government incentives; key barriers – inadequate infrastructure, insurgency legacy, limited skilled workforce
- IFI vs FDI data: FDI flows to India (\$80 billion in 2024-25) are heavily concentrated in Maharashtra, Karnataka, Delhi NCR; IFI helps understand why and what other states need to change to attract more
- Policy tool: NITI Aayog will use IFI to direct technical assistance to low-ranking states; states ranking in bottom quartile get dedicated reform support from NITI Aayog teams
- Competitive federalism philosophy: Niti Aayog has 20+ indices tracking state performance across sectors; philosophy is that public rankings create reputational incentives for states to reform – a market mechanism for governance improvement

INDIA-MALDIVES FTA — FIRST ROUND OF NEGOTIATIONS CONCLUDED

Ministry: Ministry of Commerce & Industry / Ministry of External Affairs

PIB Date: 14th July 2026

Easy Explanation

India-Maldives relations hit rock bottom in late 2023 when newly elected Maldives President Mohamed Muizzu demanded the withdrawal of Indian military personnel from the Maldives, suspended several bilateral defence cooperation programmes, and made public statements aligning more closely with China. India's response was calibrated – it maintained diplomatic channels, continued providing essential goods under existing agreements (India supplies Maldives with fuel, medicines, rice, and construction materials), and waited for economic reality to do its work. The Maldives economy is almost entirely dependent on tourism, and Indian tourists are its largest source of visitors. When Muizzu's anti-India rhetoric triggered a tourist boycott in India in early 2024, Maldivian tourism revenue fell sharply and the economy came under pressure. By mid-2024, Muizzu's government quietly began re-engaging with India. By 2025, the relationship had normalised significantly. The first round of India-Maldives FTA negotiations, concluded on July 14, is the clearest signal of this normalisation: you don't start trade agreement negotiations with a hostile neighbour. The FTA, if concluded, would formalise India's position as Maldives' primary economic partner, give Indian goods and services preferential access to Maldivian markets, and anchor the Maldives economically to India in a way that makes future anti-India political pivots economically costly.

Key Terms:

Term	Definition
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India-Maldives FTA	Free Trade Agreement under negotiation; first round concluded July 14; would give Indian goods/services preferential access to Maldivian market; signals relationship normalisation
Muizzu's pivot	Mohamed Muizzu elected 2023; initially pro-China; demanded Indian military withdrawal; imposed restrictions on bilateral cooperation; now normalising due to economic pressures
India's essential goods supply	India supplies Maldives with fuel (under Essential Commodities Agreement), rice, dal, medicines, construction sand – Maldives is economically dependent on India for basic goods
Tourism boycott impact	Indian social media campaign in Jan 2024 urging boycott of Maldives tourism; Indian arrivals fell 40%+ in early 2024; Maldivian tourism revenue fell significantly – economic pressure drove diplomatic recalibration
Neighbourhood First Policy	India's foreign policy doctrine of prioritising SAARC neighbours; Maldives is critical – it controls sea lanes in Indian Ocean between India's western coast and critical shipping routes
SAARC Free Trade Area (SAFTA)	Existing framework for trade among SAARC members; India-Maldives FTA would go deeper than SAFTA – covering services, investment, and digital trade beyond SAFTA's goods focus

Important Points for UPSC:

- India-Maldives trade: Currently \$400 million annually; India exports essential commodities (77% of Maldives' imports are from India); FTA would formalise and expand this, adding services and investment chapters
- Maldives economy: \$7 billion GDP; 80%+ from tourism (1.8 million visitors annually); India is historically #1 source of tourists; economic leverage is India's most powerful diplomatic tool with Maldives
- India's 'Pehle Padosi' (Neighbourhood First) approach: Maldives FTA is the 4th South Asian FTA negotiation India has active alongside Sri Lanka, Bangladesh (CEPA), and Nepal (Treaty upgrade) – systematic neighbourhood economic integration
- Strategic importance: Maldives' 1,192 islands span 900 km of the Indian Ocean; controls the 8 and 9-Degree Channels through which India's western coast shipping passes; Chinese naval presence in Maldives = direct threat to Indian naval security





- SAARC-SAFTA context: SAFTA (2006) has not delivered free trade due to negative lists and non-tariff barriers; bilateral FTA with Maldives goes deeper – a bilateral approach when multilateral SAARC is deadlocked by India-Pakistan tensions
- FTA structure expected: Goods (eliminate tariffs on most Indian exports to Maldives – pharma, food processing, textiles); Services (Indian tourism, healthcare, education services in Maldives); Investment (Indian construction, hospitality investment protection)

CAFE-III NORMS DRAFT – CORPORATE AVERAGE FUEL ECONOMY STANDARDS 2027

Ministry: Ministry of Road Transport & Highways / Bureau of Energy Efficiency

PIB Date: 16th July 2026

Easy Explanation

Every car that is sold in India has a fuel efficiency – some cars do 15 km per litre, others do 25, and electric vehicles don't use petrol at all. CAFE (Corporate Average Fuel Economy) norms force automobile manufacturers to improve the average fuel efficiency across ALL the cars they sell in India. Here is how it works: if a company sells 100 cars and the average fuel efficiency of all 100 is below the CAFE threshold, the company pays a fine for every gram of CO₂ per km it is above the limit. This creates a powerful incentive – companies either make their existing models more efficient or sell more fuel-efficient models (including EVs) to bring their average down. India implemented CAFE-I norms in 2017 (117.9 g CO₂/km average) and CAFE-II norms in 2022 (113 g CO₂/km for petrol cars). CAFE-III draft norms, circulated for stakeholder consultation this week, target 91.7 g CO₂/km by 2027 – a 19% improvement from CAFE-II. This is aggressive: to meet it, auto companies will need to electrify a significant portion of their fleet, improve engine efficiency, reduce vehicle weight, and invest in hybrid technology. The norms are modelled on EU Euro 7 and USA's CAFE standards – India is aligning its auto decarbonisation trajectory with global leaders.

Key Terms:

Term	Definition
CAFE	Corporate Average Fuel Economy – regulation requiring auto manufacturers to achieve a fleet-average fuel efficiency target; companies selling less efficient cars pay penalty per gram of CO ₂ over limit



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CAFE-III	Draft norms for 2027; target 91.7 g CO ₂ /km fleet average (down from CAFE-II's 113 g CO ₂ /km); 19% improvement required; applies to all passenger vehicles sold in India
BEE	Bureau of Energy Efficiency – under Ministry of Power; administers CAFE norms in India; also administers Star Rating for appliances
g CO₂/km	Grams of CO ₂ emitted per kilometre driven – standard measure of vehicle carbon intensity; lower is better; CAFE norms set a cap on fleet-average g CO ₂ /km
Credit Trading	Auto companies that exceed CAFE targets earn credits; companies below targets buy credits; creates market incentive for over-performers
EV fleet averaging	EVs count as zero-emission vehicles in CAFE calculations; selling more EVs allows companies to continue selling fuel-efficient petrol cars without hitting CAFE penalties

Important Points for UPSC:

- CAFE trajectory: CAFE-I 2017 (117.9 g CO₂/km) → CAFE-II 2022 (113 g CO₂/km) → CAFE-III 2027 (91.7 g CO₂/km) – India tightening standards every 5 years, aligned with global decarbonisation pace
- India's auto sector: 4 crore vehicles sold annually (largest in the world after China); 95%+ are petrol/diesel; CAFE-III forces electrification at scale – industry estimate: 25-30% of new car sales must be EVs by 2027 to meet CAFE-III
- Industry response: Maruti Suzuki (60%+ market share but mainly petrol cars) is most challenged; Tata Motors (Nexon EV, Tigor EV, Punch EV) is best positioned; Hyundai, Kia have hybrid lineups – winners and losers clear
- Hybrid vehicle push: CAFE-III incentivises strong hybrids (which achieve 25-30 km/litre) alongside full EVs; India's climate is better suited to hybrids than full EVs in many regions (range anxiety, charging infrastructure)
- Manufacturing investment implication: To meet CAFE-III, every major auto company must invest in EV platforms, battery systems, or hybrids; estimated Rs 2-3 lakh crore in auto sector EV investment needed by 2030





- EU parallel: EU's Euro 7 norms (2025) target 49 g CO₂/km; India's 91.7 is less stringent but represents the same directional shift; India calibrates norms to its market conditions (lower income consumers, infrastructure limitations)
- Air quality benefit: CAFE-III will reduce vehicular NO_x, PM_{2.5} alongside CO₂; Delhi's AQI improvement will partly depend on this fleet transition – regulatory and environmental objectives align

ACC GIGA-SCALE MANUFACTURING – 10 GWh BIDS INVITED UNDER PLI

Ministry: Ministry of Heavy Industries

PIB Date: 15th July 2026

Easy Explanation

The battery is the most critical and expensive component of an electric vehicle – accounting for 35-40% of the car's cost. If India cannot make batteries domestically, its EV revolution is simply moving the import dependence from oil (Middle East) to battery cells (China). Currently, 90%+ of battery cells used in India's EVs are imported from China, Japan, or South Korea. The Advanced Chemistry Cell (ACC) PLI was launched in 2021 with Rs 18,100 crore to attract companies to set up giga-scale battery cell manufacturing in India. A giga-scale plant produces 1 GWh (gigawatt-hour) or more of battery capacity per year – this is the scale needed to supply EV manufacturers at competitive cost. The Ministry of Heavy Industries this week invited Global Tenders for the selection of beneficiaries to set up giga-scale ACC manufacturing facilities of 10 GWh cumulative capacity – a single procurement that, if fully subscribed, would create India's first significant domestic battery cell manufacturing base. The ACC PLI has had a slow start – the original 2021 round attracted only Reliance Industries, Ola Electric, and a few others – but this new round, with improved incentive structure and clearer technology specifications, is expected to attract global battery manufacturers directly (CATL, Samsung SDI, Panasonic, LG Energy Solution) or their Indian JV partners.

Key Terms:

Term	Definition
ACC	Advanced Chemistry Cell – high-capacity, energy-dense battery cell; different from conventional lead-acid batteries; used in EVs, grid storage, consumer electronics
GWh (Gigawatt-hour)	Unit of energy storage capacity; 1 GWh can power 1 million homes for 1 hour; a typical EV battery is 40-80 kWh; 1 GWh = 12,500-25,000 EV batteries





Giga-scale factory	Battery plant producing 1 GWh or more per year; economies of scale critical for battery cost reduction; Tesla's first Gigafactory in Nevada produces 35+ GWh/year
PLI for ACC	Production-Linked Incentive for Advanced Chemistry Cells; Rs 18,100 crore; launched 2021; slow start but new global tender (July 2026) expected to attract global players
Cell vs Pack vs Module	Cell = basic battery unit; Module = group of cells; Pack = complete battery system in EV; India currently imports cells; makes modules and packs locally – indigenisation must start with cells
CATL	Contemporary Amperex Technology Co. – Chinese company controlling 37% of world's EV battery market; potential partner for Indian ACC facilities under PLI

Important Points for UPSC:

- Global EV battery market: \$135 billion in 2024; expected \$400 billion by 2030; dominated by Chinese companies (CATL 37%, BYD 16%); India has near-zero share currently
- 10 GWh in context: India needs 50+ GWh of battery capacity by 2030 to serve domestic EV demand (2 crore EVs/year target); 10 GWh is a start; additional rounds will follow
- Technology choices: Lithium Iron Phosphate (LFP) – safer, cheaper, longer life (CATL's speciality); Nickel Manganese Cobalt (NMC) – higher energy density (Samsung SDI, LG, Panasonic); India's PLI is technology-neutral
- India-Japan battery link: India-Japan Summit (Week 5) signed Batteries MoC; Panasonic and other Japanese companies exploring India manufacturing under this bilateral framework – ACC PLI is the domestic policy instrument they would use
- Vanadium Redox Flow Battery (VRFB): Different technology from ACC; covered in Critical Minerals 8th Tranche this week (Vanadium blocks); VRFB for grid storage, ACC for EVs – India addressing both battery needs
- Cost target: Current imported EV battery cost ~\$120-130/kWh; domestic manufacturing (with PLI) could reach \$90-100/kWh by 2028; Rs 3-4 lakh reduction in EV cost – makes EVs price-competitive with petrol cars without subsidy
- Reliance Industries' entry: Reliance won 5 GWh in original ACC PLI 2021; partnering with Norwegian battery company Freyr; plant planned for Jamnagar, Gujarat; this week's 10 GWh is separate, additional allocation





GREENFIELD SHIPBUILDING CLUSTER — PORBANDAR, GUJARAT

Ministry: Ministry of Ports, Shipping and Waterways

PIB Date: 15th July 2026

Easy Explanation

India is the world's #1 ship recycling nation (covered in Week 4) and is commissioning indigenous warships almost weekly (INS Mahendragiri Week 6, INS Malvan this week). But there is a striking gap in this story: India barely builds commercial ships. The world's commercial shipbuilding is dominated by South Korea (Hyundai, Samsung, DSME), China (CSSC, CSIC), and Japan (Imabari, Kawasaki) — together accounting for 95%+ of global commercial ship orders. India's commercial shipbuilding is tiny: Cochin Shipyard (the largest) does a few commercial vessels a year, primarily for coastal shipping. Why? Because shipbuilding requires enormous upfront infrastructure (dry docks, panel shops, outfitting quays, specialised cranes), a deep supply chain (steel, engines, navigation equipment, cables), and a large, skilled workforce — none of which India has at commercial scale. The Greenfield Shipbuilding Cluster at Porbandar, Gujarat announced this week is the government's attempt to change this. Porbandar was chosen for its deep-water access on the Arabian Sea, proximity to Gujarat's steel industry, existing port infrastructure, and land availability. The cluster will provide shared infrastructure (dry docks, fabrication shops, common testing facilities) that individual companies can use — reducing the capital barrier for new entrants. The National Shipbuilding Policy 2025 provides financial incentives (shipbuilding credit, lower interest rates, government procurement preference for Indian-built ships) to make the cluster commercially viable.

Key Terms:

Term	Definition
Greenfield Shipbuilding Cluster	New dedicated shipbuilding zone at Porbandar, Gujarat; shared infrastructure (dry docks, fabrication shops); part of National Shipbuilding Policy 2025
Dry Dock	Large water-filled structure where ships are built or repaired; ship is floated in, water is pumped out, ship sits on keel blocks for construction; requires massive infrastructure
National Shipbuilding Policy 2025	Government policy providing financial incentives for commercial shipbuilding — interest subvention, GST concessions, government procurement preference for Indian vessels
Cochin Shipyard Ltd (CSL)	India's largest commercial shipyard; Kochi, Kerala; built INS Vikrant (India's first indigenous aircraft carrier); also builds some commercial vessels; government PSU



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India's import of ships	India spends \$4-5 billion annually importing ships; 95% of ships used in Indian shipping are foreign-built; domestic industry barely registers globally
South Korea's advantage	South Korea's 3 large shipyards (Hyundai, Samsung, DSME) have 50+ year head start; massive dry docks (400m+ long), 40,000 workers each, automated construction; India starting from near-zero

Important Points for UPSC:

- Global commercial shipbuilding: South Korea (36% market share), China (48%), Japan (11%), all others (5%); India is in 'all others' – negligible; Porbandar cluster is India's attempt to enter this market
- India's shipbuilding advantage: Steel (India is 2nd largest steel producer), engineering skills, lower labour cost, large domestic demand (India has 5th largest merchant fleet by ownership) – natural advantages exist but infrastructure was missing
- Cluster economics: Shared infrastructure reduces per-company capital requirement from Rs 2,000-5,000 crore to Rs 200-500 crore per company; 10 companies in a cluster = Rs 2,000-5,000 crore total vs Rs 20,000-50,000 crore separately
- Vessel types targeted: Initially coastal vessels, dredgers, small tankers, and offshore support vessels – market segments where India can compete without matching Korean/Chinese scale; deep-sea vessels will come later
- Defence spillover: Naval warship building expertise (MDL, GRSE, L&T) can transfer to commercial shipbuilding – same steel fabrication, same welding skills, different systems integration; Porbandar cluster can leverage this
- Maritime Vision 2030 target: India aims for 1% global shipbuilding market share by 2030 (currently near-zero); then 5% by 2047; Porbandar is the first step in a decades-long industrial policy programme
- Employment potential: A mature shipbuilding cluster of 1 million GT/year capacity would employ 50,000+ directly and 2 lakh+ in the supply chain – high-quality industrial employment in coastal Gujarat

BHARAT TEX 2026 — INDIA'S LARGEST GLOBAL TEXTILE EXPO

Ministry: Ministry of Textiles



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PIB Date: 14th–17th July 2026

Easy Explanation

Bharat Tex is India's attempt to build a textile trade event that competes with Paris's *Première Vision* and Milan's *Texworld* – the global events where fashion brands, clothing manufacturers, and fabric buyers from around the world come together to set trends, place orders, and form partnerships. The first Bharat Tex was held in February 2024 and was a landmark – 3,500 exhibitors, 90 countries, 3 lakh visitors, Rs 1.37 lakh crore in business enquiries. Bharat Tex 2026 (July 14-17) was larger: over 5,000 exhibitors, 110+ countries, and multiple thematic days covering sustainability (recycled fibres, organic cotton, natural dyes), technology (technical textiles, smart fabrics, automated weaving), and global trade partnerships. The event is important for several reasons beyond the buzz. India's textile exports have stagnated at \$35-40 billion for several years – far below Bangladesh (\$45 billion) and China (\$300 billion). India has the raw material (cotton, silk, jute), the skilled workers, and the manufacturing base – but lacks the marketing muscle, the buyer relationships, and the brand presence to convert these into export orders. Bharat Tex is designed to build all three. A specific milestone: Bharat Tex Trade Federation (BTF) and *Première Vision* Paris signed a strategic partnership this week – India's textile industry will now have a formal presence at Europe's most important textile event.

Key Terms:

Term	Definition
Bharat Tex 2026	India's largest global textile expo; 5,000+ exhibitors; 110+ countries; July 14-17; Ministry of Textiles initiative; covers yarns, fabrics, technical textiles, fashion
Première Vision Paris	World's most influential textile trade show; Paris; twice annually; sets global fabric trends; BTF-Première Vision partnership gives India a permanent seat at this table
Technical Textiles	Functional fabrics for non-clothing uses – geotextiles, medical textiles, protective wear, automotive textiles, smart fabrics; India's fastest-growing textile segment
India textile exports	\$38 billion (2024-25); Bangladesh (\$45 billion) has overtaken India; China dominates (\$300 billion); India's target \$100 billion by 2030
Sustainability focus	Bharat Tex 2026's theme included circular textile economy – recycled polyester, organic cotton, natural indigo dyes; major brands (Zara, H&M, Primark) are shifting to sustainable sourcing



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**PM MITRA parks**

PM Mega Integrated Textile Region and Apparel Parks – 7 states; plug-and-play textile manufacturing zones; Bharat Tex 2026 showcased PM MITRA investment opportunities to international buyers

Important Points for UPSC:

- India's textile sector: 2nd largest employer after agriculture (4.5 crore workers); contributes 12% of India's merchandise exports; 4% of global textile exports – far below potential
- Bangladesh comparison: Bangladesh exports \$45 billion in textiles (garments only), beating India's \$38 billion total; Bangladesh has lower wages (30% below India), better trade preferences (GSP in EU), and concentrated garment industry
- India's strength vs Bangladesh's: India makes the raw material (cotton, polyester, silk) that Bangladesh imports; India's strength is in fabric and yarn, not finished garments; Bharat Tex positions India as a supplier to garment-making countries
- Technical textiles opportunity: Global technical textiles market \$280 billion; India's share is \$22 billion (8%); government target \$40 billion by 2030; Bharat Tex 2026 had dedicated technical textiles pavilion
- PLI for Textiles: Rs 10,683 crore PLI for man-made fibres (MMF) and technical textiles; Bharat Tex 2026 showcased PLI-supported investments – gives international buyers confidence in India's capacity scale-up
- Lakhpati Didis at Bharat Tex: Ministry of Rural Development showcased handloom and handicraft products made by SHG women ('Lakhpati Didis') – connects India's rural craft ecosystem to global buyers
- Sustainable textile shift: EU's Ecodesign Regulation (2024) mandates sustainable textiles; Indian organic cotton, natural dye fabrics, recycled polyester yarn are well-positioned; Bharat Tex 2026 accelerated these buyer conversations

RAILWAY REFORM EXPRESS — 8 FREIGHT STRUCTURAL REFORMS

Ministry: Ministry of Railways

PIB Date: 14th July 2026

Easy Explanation

Indian Railways carries 1.5 billion tonnes of freight per year – coal, steel, cement, fertiliser, food grains, automobiles. But its share of India's total freight market has been declining for decades: from 90% in 1950 to



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under 27% today. Roads have taken the rest – and roads are more congested, more polluting, and less energy-efficient than railways. India's logistics cost (as a % of GDP) is 13-14%, compared to 8% in China and 7-8% in developed countries – and this high logistics cost makes Indian products uncompetitive globally. The reason Railways has lost freight share is well understood: inflexible tariffs, slow transit times, limited terminal facilities, poor last-mile connectivity, and opaque booking systems. Railway Minister Ashwini Vaishnaw unveiled 8 structural reforms under 'Reform Express' specifically for freight operations this week. The reforms: (1) Dynamic Freight Tariff – prices change with demand (like airline pricing); (2) Dedicated Freight Corridor full utilisation – DFCs now carrying 80% of capacity; (3) One Station One Product Scheme extended; (4) Kisan Rail for perishables expanded; (5) Port connectivity siding improvements; (6) E-Freight marketplace for booking; (7) End-to-end logistics (first and last mile) solutions; (8) Freight train speed increased to 50 km/h average (from 25 km/h currently).

Key Terms:

Term	Definition
Reform Express	Railway Minister's freight reform initiative; 8 structural changes unveiled July 14; aims to increase Railways' freight share and improve logistics efficiency
Dedicated Freight Corridors (DFCs)	Two DFCs: Western (1,506 km, Delhi-Mumbai) and Eastern (1,337 km, Delhi-Kolkata); operational since 2022-23; allow 100-tonne freight trains at 100 km/h – 4x capacity vs regular tracks
Dynamic Freight Tariff	Market-based pricing for freight – prices vary with demand, time, route utilisation; replaces fixed tariff schedule; similar to airline yield management
One Station One Product (OSOP)	Each station promotes a locally produced product for railway freight; connects local manufacturers directly to rail logistics network
Kisan Rail	Refrigerated freight trains for perishable agricultural produce; connects farmers directly to distant markets; reduces post-harvest losses from Rs 1.5 lakh crore annually
Freight speed target	Current average freight train speed: 25 km/h (with stops, marshalling); Reform Express targets 50 km/h average – halves transit time; makes rail competitive with road for time-sensitive cargo





Important Points for UPSC:

- Railways freight share decline: 90% (1950) → 62% (1970) → 40% (1990) → 27% (2024); if reversed to 45% by 2030 (government target), saves Rs 2-3 lakh crore in logistics costs annually
- DFC impact: Western DFC alone has reduced Mumbai-Delhi freight time from 5 days to 27 hours; container trains running at 100 km/h with 100+ wagons; game-changer for manufacturing logistics
- Dynamic pricing: Currently Railways has fixed tariff schedules set years in advance; dynamic pricing allows peak pricing (when DFCs are full) and off-peak discounts (to attract new cargo) – better asset utilisation
- Logistics cost: India's 13-14% logistics cost vs China's 8% = Rs 3-4 lakh crore annual excess cost for Indian industry; PM GatiShakti is the umbrella framework; railway freight reform is the single largest contributor
- PM GatiShakti connection: National Master Plan for multimodal infrastructure; Rs 100 lakh crore over 25 years; railway freight reforms are the implementation instrument for GatiShakti's logistics cost reduction goals
- E-Freight Marketplace: Online platform for booking freight wagons (like booking airline seats online); reduces booking time from days to hours; real-time wagon availability; connects shippers directly with Railways
- IRCTC freight division: New IRCTC website beta launched this week alongside Reform Express; freight module integration planned – same platform for passenger and freight booking is a global logistics best practice

ICAR 98TH FOUNDATION DAY – 386 CROP VARIETIES, 94% CLIMATE-RESILIENT

Ministry: Ministry of Agriculture & Farmers Welfare / ICAR

PIB Date: 16th July 2026

Easy Explanation

The Indian Council of Agricultural Research (ICAR) is India's apex agricultural research body – its 100+ research institutes and universities develop the seeds, technologies, and practices that India's 14 crore farm families depend on. At ICAR's 98th Foundation Day, Agriculture Minister Shivraj Singh Chouhan unveiled a striking achievement: ICAR developed 386 improved crop varieties in a single year (2025-26) – across 44 different crops including rice, wheat, pulses, oilseeds, vegetables, fruits, and fodder. Of these 386 varieties, 94% are climate-resilient – meaning they are specifically designed to withstand heat stress, drought, flood, or salinity, which are the primary threats that climate change poses to Indian agriculture. 29 of the 386 varieties



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are biofortified – enriched with nutrients like iron, zinc, protein, and vitamins. Why does this matter? India's food security depends not just on how much food is grown (quantity) but on whether the food system can survive climate shocks. The 2022 wheat crop was damaged by an unexpected March heat wave – reducing yields 10-15% and forcing India to ban wheat exports for the first time in years. Climate-resilient varieties are the scientific insurance against such shocks. Biofortified varieties address India's hidden hunger – 50%+ of Indian children are deficient in iron, zinc, or vitamin A – without requiring expensive dietary changes.

Key Terms:

Term	Definition
ICAR	Indian Council of Agricultural Research – apex agricultural research body; 102 institutes; 71 agricultural universities; 20,000+ scientists; Rs 8,000 crore annual budget
Climate-Resilient Varieties	Crop varieties bred to withstand heat, drought, flood, or salinity; ICAR developed 363 of 386 (94%) as climate-resilient in 2025-26
Biofortified Variety	Crop variety with enhanced nutritional content – higher iron, zinc, protein, vitamin A, lysine; developed through conventional breeding or genetic engineering; 29 released this year
Hidden Hunger	Micronutrient deficiency (iron, zinc, vitamin A, iodine) despite adequate calorie intake; affects 50%+ of Indian children; biofortified crops address this without expensive supplements
NRAA (National Rainfed Area Authority)	ICAR associate body; coordinates research for 63% of India's cropped area that is rainfed (not irrigated); climate-resilient varieties are especially critical for rainfed agriculture
HarvestPlus	International organisation developing biofortified crops globally; partners with ICAR; Iron-rich pearl millet ('Dhan Shakti') developed under this collaboration is now widely planted

Important Points for UPSC:

- 386 varieties across 44 crops: Rice (68 varieties), Wheat (24), Maize (31), Pulses/Legumes (45), Oilseeds (38), Vegetables (56), Fruits (28), Fodder/Feed (22), Others (74) – comprehensive coverage of India's crop basket
- Climate-resilience types: Heat-tolerant wheat (withstands March heat waves); drought-tolerant rice (needs 30% less water than conventional); flood-tolerant varieties (Swarna-Sub1 rice survives 2 weeks underwater); salt-tolerant mustard for saline coastal soils





- Biofortified highlights: Iron-rich pearl millet (addresses 58% anaemia in Indian women); Zinc-rich rice (DRR Dhan 48); Protein-rich chickpea; Vitamin A-rich sweet potato ('Bhu Sona') – all approved for cultivation this year
- March 2022 wheat heat wave: Temperature rose 4-5 degrees C above normal in March 2022; conventional wheat yielded 10-15% less; ICAR's heat-tolerant wheat varieties (HD 3385, HD 3271) showed normal yield – direct proof of value
- Green Revolution vs Gene Revolution: Green Revolution (1960s) used chemical fertilisers + irrigation + high-yielding varieties to end hunger; Gene Revolution uses biotechnology + climate science + precision breeding for the next agricultural transformation
- ICAR's budget vs output: Rs 8,000 crore annual budget; 386 crop varieties per year = Rs 21 crore per variety; compared to private sector agricultural R&D (Rs 50-100 crore per variety) – exceptional public value for money
- Connects to: NIPU-2026 (urea for these crops), VB-G RAM G (wages for farm workers who will grow these crops), Bharat Tex (crops like cotton developed by ICAR)

INDIA'S FIRST ENGINEERING BIOLOGY GRADUATION COURSE

Ministry: Ministry of Science & Technology / DBT

PIB Date: 16th July 2026

Easy Explanation

Engineering Biology – also called Synthetic Biology or Industrial Biotech – is a field that treats living organisms the way engineers treat machines. Just as a mechanical engineer designs a car engine, an engineering biologist designs a microorganism to produce a medicine, a chemical, a fuel, or a food ingredient. The field combines molecular biology, genetics, computer science, chemical engineering, and material science. It is the foundation of precision fermentation (making dairy proteins without cows, covered in the Bioeconomy Roadmap this week), next-generation biofuels, mRNA vaccine production, bioplastics, and living diagnostics (biosensors that detect disease inside the body). Until now, India had no dedicated undergraduate or postgraduate degree in Engineering Biology. Students interested in the field had to assemble a curriculum from biochemistry, biotechnology, and chemical engineering – never getting the integrated training the field requires. Dr Jitendra Singh, Minister of State for Science & Technology, announced India's first dedicated Engineering Biology graduation course – a 4-year B.Tech or B.Sc (Research) programme – to be launched at a national research institution (NCBS Bengaluru or IISER are frontrunners). The programme will train 50-100 students per year in the first cohort, scaling to 500+ as industry demand grows. This directly addresses the 'brain drain' problem in this field: currently, Indian



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students who want to do Engineering Biology go to MIT, ETH Zurich, or Imperial College London for education – and often don't return.

Key Terms:

Term	Definition
Engineering Biology	Interdisciplinary field designing biological systems for useful purposes; combines molecular biology, genetics, computer science, chemical engineering; foundation of bioeconomy's next phase
Synthetic Biology	Designing and constructing new biological parts, devices, and systems; or redesigning existing natural systems for useful purposes; overlaps with Engineering Biology
Precision Fermentation	Using engineered microorganisms to produce specific proteins, fats, or compounds; makes dairy proteins without cows, animal fats without animals – food system disruption
DBTSTAR Policy	DBT's Science, Technology and Innovation Policy for Biotechnology; Engineering Biology programme sits within this framework; DBT provides research funding for the new course
NCBS Bengaluru	National Centre for Biological Sciences – premier research institution; frontrunner to host India's first Engineering Biology degree; existing faculty in synthetic biology
Brain drain context	Indian students who want Engineering Biology go to MIT (\$75,000/year), ETH Zurich, or Imperial College; domestic programme at competitive quality retains this talent in India

Important Points for UPSC:

- Engineering Biology global market: \$50 billion (2024) → projected \$300 billion by 2035; USA, UK, Germany, China are leaders; India has talent but no formal training pipeline – this course begins fixing that
- Programme structure: 4-year B.Tech/B.Sc (Research); Year 1-2: foundational (molecular biology, genetics, programming, chemical engineering); Year 3-4: specialisations (industrial biotech, medical biotech, agricultural biotech, biofuels)



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- Industry demand: Biotech companies (Biocon, Serum Institute, Piramal, Dr Reddy's), precision fermentation startups, mRNA vaccine companies all cite inability to find Engineering Biology graduates as a bottleneck to growth
- mRNA vaccine connection: COVID-19 vaccines (Pfizer, Moderna) were made using mRNA – Engineering Biology's most visible recent output; India developing indigenous mRNA vaccines (HGCO19 by Gennova); requires Engineering Biology graduates
- Bioeconomy Roadmap link: This week's NITI Aayog Bioeconomy Roadmap 2035 (\$500 billion target) and this Engineering Biology course are two parts of the same strategy – supply the human capital for the bioeconomy
- iGEM connection: International Genetically Engineered Machine competition – global synthetic biology competition for students; Indian teams have been competing with borrowed training from biology + engineering separately; dedicated course will dramatically improve India's performance

CODEX ALIMENTARIUS — INDIA GETS THREE GLOBAL SPICE STANDARDS ADOPTED

Ministry: Ministry of Commerce & Industry / Food Safety and Standards Authority of India

PIB Date: 14th July 2026

Easy Explanation

When you export food from India to Germany or the USA, the buyer country has the right to test the food and reject it if it does not meet their food safety standards. These standards can be genuine (protecting public health) or they can be used as non-tariff barriers – invented standards that are designed not to protect public health but to keep out competition. The Codex Alimentarius Commission (CAC) – a joint body of WHO and FAO – solves this by setting international food safety and quality standards that all member countries agree to recognise. If a food product meets Codex standards, WTO member countries cannot block its import using their own separate national standards (unless they can prove Codex standards are insufficient). India hosted the 49th session of the Codex Alimentarius Commission (CAC49) in New Delhi this month. In the culmination of years of technical work, CAC49 formally adopted three global standards proposed by India – specifically for spices: Black Pepper (whole and ground), Cardamom, and Cumin. This is enormously significant for India's spice exports. India is the world's largest producer and exporter of spices – \$4 billion in annual spice exports to 180 countries. But Indian spice exporters have faced repeated rejections at foreign borders on grounds of pesticide residues, aflatoxin (a fungal contaminant), and adulteration. With Codex standards now adopted for these three spices, Indian exporters who meet Codex thresholds have legal protection against arbitrary rejections under WTO's SPS (Sanitary and Phytosanitary) Agreement.



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Key Terms:

Term	Definition
Codex Alimentarius Commission (CAC)	Joint WHO-FAO body; sets international food safety and quality standards; 189 member countries; standards form basis for WTO trade dispute resolution under SPS Agreement
CAC49	49th Session of Codex Alimentarius Commission; hosted by India in New Delhi; adopted India-proposed standards for Black Pepper, Cardamom, Cumin
Codex Standard	Internationally agreed food safety specification; countries that meet Codex standards cannot have their exports blocked on those grounds under WTO SPS Agreement
SPS Agreement	WTO Agreement on Sanitary and Phytosanitary Measures; countries can set food safety standards but they must be based on science or Codex; blocks arbitrary food trade bans
Aflatoxin	Toxic compound produced by Aspergillus mould; grows on spices in humid conditions; major reason for rejection of Indian spice exports; Codex standard sets maximum permissible limits
FSSAI	Food Safety and Standards Authority of India – India's apex food regulator; led the technical negotiations for these three Codex spice standards; under Ministry of Health

Important Points for UPSC:

- India's spice exports: \$4 billion (2024-25); world's largest spice exporter; top destinations: USA, China, Vietnam, Thailand, UK; 75+ spices exported; pepper, cardamom, cumin are three most valuable
- Why India pushed for Codex standards: Indian spice exporters faced Rs 500-1,000 crore in annual rejections, especially in EU and USA; Codex adoption gives them a legally defensible quality benchmark
- CAC process: Any member country can propose a standard; goes through elaborate 8-step process of scientific review, member consultation, amendment; India's three spice standards took 5-7 years through this process





- **Aflatoxin in Black Pepper:** The new Codex standard sets maximum aflatoxin B1 at 5 micrograms/kg and total aflatoxins at 10 micrograms/kg – harmonised with EU limits; Indian exporters now have a clear target to meet
- **Cardamom standard:** Guatemala is India's main competitor in cardamom; India proposed the Codex cardamom standard partly to ensure that Guatemala's (often lower-quality) cardamom cannot undercut India's quality premium in international markets
- **Hosting CAC49 significance:** India hosted for the first time; Prime Minister attended the opening; demonstrates India's aspiration to be a global food standards setter, not just a follower
- **Spice Board of India:** Under Commerce Ministry; promotes spice exports; will now use Codex adoption in marketing – 'Codex-compliant Indian spices' becomes a quality certification and marketing label
- **WTO SPS Agreement connection:** Under SPS, if importing country's standards are more stringent than Codex, they must justify on scientific grounds or face WTO dispute; India can now challenge arbitrary rejections using these Codex standards as legal ammunition

CAFE-III NORMS: PARIVARTAN SCHEME — OLD VEHICLE REPLACEMENT IN NCR

Ministry: Ministry of Housing & Urban Affairs / CAQM

PIB Date: 16th July 2026

Easy Explanation

Delhi's air quality is among the worst in the world – its AQI regularly crosses 400 in winters (Hazardous category). Vehicular pollution contributes 25-40% of Delhi's particulate matter (PM2.5) during peak pollution months. A significant portion of this comes from old vehicles – trucks and buses that are more than 10-15 years old, running on pre-BS-IV or pre-BS-VI fuel norms, emitting 5-10x more pollutants per kilometre than newer vehicles. The PARIVARTAN Scheme, for which MoHUA released guidelines this week, is a targeted programme to accelerate the replacement of these old trucks and buses in the Delhi-NCR region. It works by providing a financial incentive (scrappage bonus) to fleet owners who voluntarily surrender old vehicles for scrapping and purchase new BS-VI compliant replacements. The bonus covers 20-25% of the cost differential between the old vehicle's scrap value and the new vehicle's cost. Companies like Olectra Greentech (electric buses), Montra Electric (TI Clean Mobility), and others joined the scheme this week as partners. Unlike CAFE norms (which are producer-facing), PARIVARTAN is consumer-facing – it incentivises fleet owners, not manufacturers. Together, CAFE norms (push supply toward cleaner vehicles) + PARIVARTAN (pull demand toward cleaner vehicles) = a two-pronged approach to vehicular decarbonisation in India's most polluted region.



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**Key Terms:**

Term	Definition
PARIVARTAN Scheme	Programme for accelerated replacement of old trucks and buses in Delhi-NCR; financial incentive for scrapping old vehicles and buying BS-VI compliant new ones
CAQM	Commission for Air Quality Management in NCR and Adjoining Areas – statutory body created by Parliament (CAQM Act 2021); coordinates pollution control across Delhi, UP, Haryana, Rajasthan, Punjab
BS-VI	Bharat Stage VI emission standard – equivalent to Euro 6; mandatory for new vehicles sold in India from April 2020; 80%+ cleaner than BS-IV in NOx and particulate emissions
End of Life Vehicle (ELV)	Vehicle that has reached end of its useful life; Delhi-NCR has banned vehicles older than 10 years (diesel) and 15 years (petrol) from operating; PARIVARTAN incentivises voluntary early retirement
Scrappage Policy 2021	National Vehicle Scrappage Policy; all government vehicles >15 years automatically scrapped; private vehicles need fitness test after 20 years; PARIVARTAN is a localised acceleration of this
NCR air quality baseline	Delhi-NCR AQI: good (<50) for only 10-15 days/year; PM2.5 annual average 90-100 micrograms/m ³ vs WHO limit of 5 and India's NAAQS of 40; vehicular pollution is 25-40% of this

Important Points for UPSC:

- Delhi-NCR fleet: 1.3 crore registered vehicles; approximately 3-4 lakh commercial vehicles (trucks, buses) that are more than 10 years old; these are PARIVARTAN's primary target
- Health impact: WHO estimates PM2.5 pollution causes 2.1 million premature deaths in India annually; Delhi-NCR's pollution causes life expectancy reduction of 10+ years for long-term residents – PARIVARTAN has direct public health rationale
- Electric bus angle: PARIVARTAN scheme's bonus is higher if the replacement vehicle is fully electric (not just BS-VI diesel); Olectra Greentech joining confirms electric bus manufacturers see this as a demand-creation mechanism





- CAQM coordination: CAQM coordinates across 5 states (Delhi, UP, Haryana, Rajasthan, Punjab); PARIVARTAN replaces the older, less effective Graded Response Action Plan (GRAP) which was reactive (acting after pollution rises) vs PARIVARTAN which is proactive
- Scrappage infrastructure: Registered Vehicle Scrapping Facilities (RVSFs) are being set up across India; PARIVARTAN requires old vehicles to be scrapped at certified RVSFs, not just abandoned – ensures environmentally sound disposal
- CAFE + PARIVARTAN synergy: CAFE (supply push – manufacturers make cleaner vehicles) + PARIVARTAN (demand pull – fleet owners retire old vehicles) + Emission Trading Scheme (pilot in Gujarat/Maharashtra) = India's three-pillar vehicular decarbonisation strategy

BHASHINI-PNB MoU – MULTILINGUAL AI FOR INCLUSIVE BANKING

Ministry: Ministry of Electronics & IT (MeitY) / Punjab National Bank

PIB Date: 15th July 2026

Easy Explanation

We covered BHASHINI (Bharat ki Bhasha Interfaces for India) in detail in Week 5's brief – India's national multilingual AI platform that makes digital services accessible in 22+ Indian languages. This week, Punjab National Bank (PNB) signed an MoU with Digital India BHASHINI Division (DIBD) to integrate BHASHINI's multilingual capabilities into PNB's banking services. What does this mean in practice? A farmer in rural UP can call PNB's customer service and speak in Bhojpuri (a dialect of Hindi) – BHASHINI's Automatic Speech Recognition (ASR) transcribes it, its Machine Translation (MT) converts it to standard Hindi or English, the banking system processes the request, and the response is translated back and spoken to the farmer in Bhojpuri via Text-to-Speech (TTS). All in real time. The same customer can access PNB's mobile banking app in their language – not just Hindi but Bhojpuri, Maithili, Chhattisgarhi, and other regional languages that are not among the 22 official languages but are spoken by tens of millions. This matters enormously for financial inclusion: 190 million Indians remain unbanked or severely underbanked, and language is one of the primary barriers – banking forms, terms, and conditions in English or formal Hindi are inaccessible to many rural customers.

Key Terms:

Term	Definition
BHASHINI-PNB MoU	Digital India BHASHINI Division (DIBD) + Punjab National Bank; BHASHINI's multilingual AI integrated into PNB banking services; real-time speech recognition, translation, TTS in regional languages



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Financial Inclusion language barrier	190 million unbanked Indians; language is a primary barrier – banking interfaces in English/formal Hindi exclude speakers of Bhojpuri, Maithili, Chhattisgarhi, Gondi etc.
Dhruva AI stack	Open-source multilingual AI platform powering BHASHINI; 100+ models for ASR, MT, TTS across 22+ languages; PNB integrates via BHASHINI API
PNB	Punjab National Bank – India's 2nd largest public sector bank; 10,000+ branches; 180 million customers; significant rural presence makes BHASHINI integration particularly impactful
ASR + MT + TTS pipeline	Speech Recognition converts spoken regional language to text → Machine Translation converts to banking language → TTS speaks response back in customer's language; complete voice banking in any language
Jan Dhan + BHASHINI	Jan Dhan accounts (53+ crore) for financial inclusion; BHASHINI makes these accounts truly accessible to those who couldn't previously use digital banking due to language barriers

Important Points for UPSC:

- 190 million unbanked Indians: Primarily concentrated in UP, Bihar, Rajasthan, MP, Jharkhand, Odisha; majority are speakers of regional dialects not covered by standard banking interfaces
- PNB's rural reach: 40%+ of PNB branches are in rural/semi-urban areas; 5 crore+ Jan Dhan account holders with PNB; BHASHINI integration directly serves this existing customer base
- Beyond Hindi: BHASHINI covers 22 official languages + 200+ dialects; PNB integration adds Bhojpuri (5.6 crore speakers), Maithili (1.2 crore), Chhattisgarhi (1.8 crore) to banking accessibility
- RBI's financial inclusion mandate: RBI requires banks to have multilingual customer service; BHASHINI-PNB MoU is the first digital-scale implementation of this mandate
- Connects to ABDM: Ayushman Sarathi (PM-JAY chatbot in 12 languages, Week 5) used BHASHINI; now banking joins health in using BHASHINI – India building a multilingual DPI layer across all critical public services
- Competitive banking: SBI, HDFC, and other banks will face competitive pressure to offer similar multilingual services; BHASHINI being open-source (Dhruva stack) means any bank can integrate at low cost





NCVET-ASQA MoU — INDIA-AUSTRALIA VOCATIONAL QUALIFICATION RECOGNITION

Ministry: Ministry of Skill Development & Entrepreneurship

PIB Date: 15th July 2026

Easy Explanation

An Indian plumber who has completed a Diploma in Plumbing Technology from an ITI (Industrial Training Institute) in India wants to work in Australia, where there is a massive skills shortage in construction trades. Currently, his Indian qualification is not recognised in Australia – he has to redo training, get re-assessed, and wait months for skill recognition. This wastes time, money, and talent. The MoU between NCVET (National Council for Vocational Education and Training – India's apex vocational qualification regulator) and ASQA (Australian Skills Quality Authority – Australia's vocational education regulator) signed this week as an outcome of PM Modi's Australia visit changes this. The two countries agree to: (1) Mutual recognition of qualifications – Indian vocational certificates from NCVET-accredited institutions will be recognised in Australia and vice versa; (2) Quality assurance equivalence – NCVET's assessment standards are benchmarked to Australian VET (Vocational Education and Training) standards; (3) Student and trainer mobility – Indian VET trainers can teach in Australia, Australian VET experts can come to India. This is significant because Australia has a critical shortage of skilled trades workers (electricians, plumbers, welders, healthcare workers) while India has an oversupply of trained but underemployed vocation graduates. The MoU creates a legal pathway for structured, regulated migration of skilled Indian workers to Australia.

Key Terms:

Term	Definition
NCVET	National Council for Vocational Education and Training – India's apex regulatory body for vocational education; established 2018; replaced NCVT; under Ministry of Skill Development
ASQA	Australian Skills Quality Authority – Australia's national regulator for vocational education and training (VET); ensures quality of RTOs (Registered Training Organisations) in Australia
Mutual Recognition of Qualifications (MRQ)	Agreement between two countries to accept each other's educational credentials; avoids re-training for skilled workers moving between countries



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VET (Vocational Education and Training)	Australia's system of vocational and technical training; equivalent to India's ITI/Polytechnic system; leads to Certificate, Diploma, and Advanced Diploma qualifications
Skills shortage in Australia	Australia has 500,000+ unfilled skilled trades positions; construction boom, aged care expansion, IT growth; Indian skilled workers are a natural fit for many roles
India's skills ecosystem	14,000+ ITIs; 15,000+ polytechnics; 10 lakh+ vocational graduates annually; Skill India Mission has trained 1 crore+ workers; NCVET-ASQA MoU opens Australia as a destination

Important Points for UPSC:

- NCVET established 2018 under the National Council for Vocational Education and Training Act; replaced old NCVT (National Council for Vocational Training); sets qualification standards for all vocational courses in India
- Australia's critical shortage sectors where Indian workers can fill: Construction (plumbers, electricians, carpenters), Healthcare (nurses, aged care workers), Hospitality (chefs, hotel management), IT (developers, data analysts, cybersecurity)
- Skill India Mission numbers: 1 crore+ trained under Pradhan Mantri Kaushal Vikas Yojana (PMKVY); 14,000 ITIs with 24 lakh seats; 2,000+ Jan Shikshan Sansthan; NCVET-ASQA MoU gives this trained workforce an international pathway
- Previous recognition gaps: Australian immigration system (IELTS language test + skills assessment) was the only pathway; skills assessment agencies (TRA for trade workers, VETASSESS for others) were expensive and slow; MoU streamlines
- Remittance potential: Indian workers in Australia earn AUD 70,000-100,000 annually; 10,000 additional skilled workers under MoU = Rs 6,000-9,000 crore additional annual remittances to India
- Connects to India-NZ visit: NCVET-ASQA MoU mirrors what India should negotiate with NZ, UK, Germany (all with skills shortages); Australia MoU sets the template for others
- NEP 2020 vocational integration: NEP mandates vocational education from Grade 6; if students get internationally-recognised qualifications from Grade 9-12, overseas employment opportunities become available earlier





PRACTICE QUESTIONS

10 PRELIMS QUESTIONS — UPSC PRELIMS STYLE

Q1. Consider the following about Semicon 2.0, approved by Cabinet on 15th July 2026:

1. It provides rolling 10-year incentive windows, removing policy discontinuity risk for semiconductor investors.
2. It includes a sovereign chip design programme for defence and critical national infrastructure applications.
3. It targets training 85,000 semiconductor engineers by 2030.
4. It replaces the India Semiconductor Mission (ISM) and cancels all existing ISM commitments.

How many of the above are correct?

- (a) Only two
- (b) Only three
- (c) All four
- (d) Only one

Q2. India's first Hydrogen Fuel Cell Train has been developed by:

- (a) DRDO in collaboration with BARC, using technology licensed from Germany's Alstom
- (b) RDSO (Research Designs and Standards Organisation) in collaboration with Indian industry
- (c) Indian Railways' Production Unit in Kapurthala under a joint venture with Japan's Hitachi
- (d) ISRO's technology transfer division using its satellite propulsion expertise

Q3. With reference to the India-UK CETA that entered into force on 15th July 2026:

1. The Double Contribution Convention (DCC) exempts Indian professionals temporarily working in the UK from paying social security in both countries for up to 5 years.
2. The UK Scotch whisky tariff in India was reduced from 150% to 75% on the day of entry into force.
3. 99% of Indian goods exports to the UK get duty-free access under the agreement.
4. India has excluded all agricultural products from the agreement's tariff concessions.

Which of the above are correct?

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





Q4. The Codex Alimentarius Commission (CAC) adopted three global spice standards proposed by India at CAC49. These three spices are:

- (a) Turmeric, Chilli, and Coriander
- (b) Black Pepper, Cardamom, and Cumin
- (c) Ginger, Fenugreek, and Mustard Seeds
- (d) Black Pepper, Turmeric, and Saffron

Q5. Consider the following about Critical Minerals auctions in India:

1. The 8th Tranche auctioned 20 blocks, bringing the cumulative total to 76 out of 88 offered.
2. The 8th Tranche includes the first-ever auction of Vanadium and Platinum Group Element (PGE) blocks in India.
3. KABIL (Khanij Bidesh India Limited) is a joint venture of NALCO, HCL, and MECL for overseas mineral acquisition.
4. Vanadium is primarily used in Vanadium Redox Flow Batteries for large-scale grid energy storage.

How many are correct?

- (a) Only three
- (b) All four
- (c) Only two
- (d) Only one

Q6. The CAFE-III (Corporate Average Fuel Economy) draft norms, circulated for consultation this week, target:

- (a) 113 g CO₂/km fleet average – same as CAFE-II – but for a wider range of vehicle categories
- (b) 91.7 g CO₂/km fleet average by 2027, representing a 19% improvement over CAFE-II
- (c) Zero emissions from all new vehicle sales by 2027, matching EU's 2035 target
- (d) 100 g CO₂/km fleet average, phased in over 5 years from 2027 to 2032

Q7. The NITI Aayog Investment Friendliness Index (IFI) assesses states on six dimensions. Which of the following is NOT one of them?

- (a) Policy Stability
- (b) Land and Infrastructure
- (c) Foreign Direct Investment inflows in the previous year
- (d) Innovation and R&D





Q8. Consider the following about India's bioeconomy and related policy:

1. NITI Aayog's Bioeconomy Roadmap 2035 targets \$500 billion bioeconomy (from \$190 billion in 2026).
2. India's first Engineering Biology graduation course was announced this week – a 4-year B.Tech or B.Sc (Research) programme.
3. Precision fermentation uses engineered microorganisms to produce food proteins, fats, and compounds.
4. The Indian Biological Data Centre (IBDC) will function as India's equivalent of the global NCBI/GenBank.

How many are correct?

- (a) Only two
- (b) Only three
- (c) All four
- (d) Only one

Q9. The PARIVARTAN Scheme, for which MoHUA released guidelines this week, is designed to:

- (a) Build 50 new smart cities in India's Tier 3 cities by 2030 using central government funding
- (b) Accelerate replacement of old trucks and buses in Delhi-NCR with BS-VI compliant and electric vehicles
- (c) Provide housing grants for urban slum dwellers to relocate to planned satellite townships
- (d) Convert Delhi-NCR's bus fleet entirely to electric by mandating phase-out of diesel buses by 2027

Q10. The NCVET-ASQA MoU signed as an outcome of PM Modi's Australia visit involves:

- (a) Mutual recognition of India's Scheduled Caste certificates for affirmative action in Australian universities
- (b) Australia providing funding for 500 new ITIs in India under Australian ODA commitments
- (c) Mutual recognition of vocational qualifications between India (NCVET) and Australia (ASQA), enabling structured skilled worker mobility
- (d) Transfer of Australia's VET curriculum to replace India's existing ITI curriculum under NEP 2020

2 MAINS QUESTIONS WITH MODEL ANSWERS

MAINS QUESTION 1 – 150 WORDS:



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Semicon 2.0, MPMS, ACC PLI, and CAFE-III norms were all approved or advanced in the same week. Together, they reflect a coherent industrial policy logic. Identify this logic and examine whether India's electronics and mobility manufacturing strategy is structurally sound or risks replicating past PLI failures.

MODEL ANSWER — 150 WORDS:

The common logic is 'demand-supply simultaneity' — India is creating domestic demand (CAFE-III forces EV adoption), securing the supply chain (ACC PLI for batteries, MPMS for components), and ensuring policy durability (Semicon 2.0's rolling 10-year windows). This corrects the key failure of PLI 1.0 — which created supply-side incentives without guaranteed demand anchors. The strategy is structurally stronger than past PLI rounds in three ways. First, the integrated stack: chips (Semicon 2.0) → batteries (ACC) → phones and EVs (MPMS + CAFE) are linked, not isolated. PLI for mobile phones worked precisely because Apple and Samsung brought their own demand; ACC and Semicon need CAFE to create comparable demand certainty. Second, workforce planning (85,000 semiconductor engineers under Semicon 2.0) addresses a structural gap that PLI 1.0 ignored. Third, the 10-year policy window reduces the 'short-termism' that made PLI-textiles underperform. However, risks remain: India's component import dependence in mobile phones (82% of components still imported despite PLI success in assembly) shows that value-chain deepening is harder than assembly attraction. MPMS and Semicon 2.0 must convert their incentives into component-level manufacturing, not just replicate the assembly-only success of PLI 1.0. The true test is whether, by 2030, a 'Made in India' phone has 40% domestic value addition — not just 15-18% as today.

MAINS QUESTION 2 — 250 WORDS:

India's agricultural science (ICAR's 386 climate-resilient crop varieties), trade diplomacy (Codex Alimentarius standards for spices, CETA in force), and industrial policy (NIPU-2026 for urea) all converged this week around a single theme. What is that theme, and how does India's approach to food and agriculture security compare with its approach to energy security — both in terms of strategic logic and structural gaps?

MODEL ANSWER — 250 WORDS:

The common theme is 'supply chain sovereignty' — reducing import dependence, building domestic production capacity, and using science and standards to protect market access abroad. India is applying this logic simultaneously to food (climate-resilient seeds, urea self-sufficiency) and energy (hydrogen trains, coal gasification, ACC batteries for EVs). In food and agriculture, India's approach





has three layers. First, upstream R&D: ICAR's 386 varieties (94% climate-resilient) protect domestic production against climate shocks – the same logic as building an SPR for oil. Second, input security: NIPU-2026 for urea self-sufficiency reduces the fertiliser import vulnerability exposed by the Russia-Ukraine war (when urea prices tripled). Third, export protection: Codex standards for black pepper, cardamom, and cumin give Indian exporters legal protection under WTO's SPS Agreement – India is not just producing food but defending its right to export it. CETA with UK adding duty-free access for food and agricultural products completes this picture. In energy, the logic is similar but the timeline is longer: hydrogen trains address import of oil for transport; Semicon 2.0 addresses import of chips for energy management systems; ACC PLI addresses import of batteries for renewable energy storage. The integration is less mature – energy sovereignty requires 15-20 years, whereas food sovereignty (seeds + fertiliser + export standards) can be achieved in 5-7 years. The structural gap in food is different from energy: in food, the risk is climate disruption of domestic production (ICAR's varieties address this); in energy, the risk is technology dependence on China (batteries, chips) – harder to address because China has a 20-year head start. India's food supply chain sovereignty is closer to achievement; energy supply chain sovereignty is the harder, longer journey. Both strategies show a consistent pattern: identify the import vulnerability, build domestic R&D capacity, create policy incentives for domestic production, and use multilateral/bilateral agreements to secure international market access. The difference is maturity – India is a decade ahead on food security strategy compared to energy supply chain strategy.

PRELIMS ANSWERS & EXPLANATIONS

Q1. Answer: (b) Only three

Explanation: Statement 4 is WRONG – Semicon 2.0 does NOT replace ISM or cancel existing commitments. It is a long-term policy framework built ON TOP of ISM's existing commitments. Ongoing projects (Tata Electronics fab, Micron ATMP, CG Semi OSAT) continue under ISM; Semicon 2.0 provides the next wave of policy support. Statements 1 (rolling 10-year windows), 2 (sovereign chip design), and 3 (85,000 engineers target) are all correct.

Q2. Answer: (b)

Explanation: India's first Hydrogen Fuel Cell Train was developed by RDSO (Research Designs and Standards Organisation) – Indian Railways' technical arm – in collaboration with Indian industry partners. It is NOT based on licensed German technology (Germany's Alstom Coradia iLint was an inspiration but India's train is indigenously developed). Not DRDO (which develops defence systems, not railway rolling stock). Not ISRO. Not Kapurthala (which makes conventional train coaches).



**Q3. Answer: (a) 1, 2 and 3 only**

Explanation: Statement 4 is WRONG – India did NOT exclude ALL agricultural products. India excluded certain sensitive agricultural items (rice, wheat, sugar) but not all; dairy, spices, processed food, and seafood DO get tariff concessions. 'All agricultural products' is an overstatement designed to trap. Statements 1 (DCC, 5-year exemption), 2 (Scotch whisky 150% → 75%), and 3 (99% duty-free goods access) are all correct.

Q4. Answer: (b)

Explanation: The three Codex spice standards adopted at CAC49 that India proposed are Black Pepper (whole and ground), Cardamom, and Cumin. Not turmeric (though India exports it widely), not saffron (option d), not ginger. These three were chosen because they are India's highest-value export spices that have faced the most trade rejections on safety grounds – making Codex standardisation most commercially urgent.

Q5. Answer: (b) All four

Explanation: All four statements are correct. Cumulative 76 blocks (8th tranche added 20 to 56 from 7th tranche); Vanadium and PGE blocks auctioned for first time; KABIL = NALCO + HCL + MECL for overseas acquisition; Vanadium's primary application is Vanadium Redox Flow Batteries (VRFB) for grid storage. Rare all-correct answer – every factual detail must be memorised precisely.

Q6. Answer: (b)

Explanation: CAFE-III draft targets 91.7 g CO₂/km fleet average by 2027, representing a 19% improvement over CAFE-II's 113 g CO₂/km. Option (a) is CAFE-II's target, not CAFE-III. Option (c) is wrong – zero emissions by 2027 is not India's target (EU has 2035 target, not zero by 2027). Option (d) is a made-up figure. 91.7 g CO₂/km must be memorised.

Q7. Answer: (c)

Explanation: 'Foreign Direct Investment inflows in the previous year' is NOT one of the six dimensions of IFI. The six are: Policy Stability, Land & Infrastructure, Talent & Labour, Financial Ecosystem, Market Access, and Innovation & R&D. FDI flows are an outcome measure – IFI measures the conditions that attract FDI, not FDI itself. This distinction is subtle and designed to test careful reading.

Q8. Answer: (c) All four

Explanation: All four are correct. NITI Aayog target \$500 billion by 2035 (from \$190 billion); first Engineering Biology graduation course announced (4-year programme); precision fermentation = engineered microorganisms making food compounds; IBDC = India's national biological data repository modelled on





NCBI/GenBank. This is a four-correct answer – each fact from this week's brief must be verified and memorised.

Q9. Answer: (b)

Explanation: PARIVARTAN is specifically about accelerating replacement of old trucks and buses in Delhi-NCR with BS-VI and electric vehicles – it provides scrapping incentives to fleet owners. NOT smart cities (that is SMART Cities Mission). NOT housing (that is PMAY). NOT mandating complete phase-out of diesel buses by 2027 (option d is too extreme – PARIVARTAN incentivises voluntary replacement, it doesn't mandate it).

Q10. Answer: (c)

Explanation: NCVET-ASQA MoU provides mutual recognition of vocational qualifications between India's NCVET and Australia's ASQA – creating a pathway for structured skilled worker mobility between the two countries. NOT about affirmative action certificates (option a). NOT about Australia funding ITIs (option b). NOT about replacing India's ITI curriculum (option d) – Australia's system informs but does not replace India's.





WEEK 02 COMPLETE

WEEK 03 BEGINS

18–24 JULY 2026

Turn the page to begin.



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VIKRAM-1 — SKYROOT AEROSPACE'S FIRST SUCCESSFUL COMMERCIAL ORBITAL LAUNCH

Ministry: Department of Space / IN-SPACe

PIB Date: 18th July 2026

Easy Explanation

On July 18, 2026, a rocket built entirely by a private Indian company reached orbit for the first time in India's history. Skyroot Aerospace — a Hyderabad-based startup founded in 2018 by two former ISRO scientists — launched its Vikram-1 rocket from ISRO's Satish Dhawan Space Centre in Sriharikota, successfully deploying three commercial satellites into a 500 km Sun-Synchronous Orbit (SSO). This is India's Falcon 9 moment — the equivalent of SpaceX's first successful Falcon 9 launch in 2010, which marked the beginning of the private space revolution in America. Before 2020, only ISRO could launch satellites from India. Then IN-SPACe (Indian National Space Promotion and Authorisation Centre) was created under the Space Policy 2020 to allow private companies to build rockets, satellites, and space stations. Skyroot was among the first companies IN-SPACe authorised. In November 2022, Skyroot made history with Vikram-S — India's first privately built rocket to reach space (a suborbital test). Vikram-1, the orbital version, is larger: it uses cryogenic Kerolox (kerosene + liquid oxygen) propulsion in its upper stage and a solid fuel lower stage, can carry 480 kg to SSO, and is designed to be cost-competitive with global launch providers. The three satellites it deployed this week include a commercial earth observation satellite (EOS-18 from an international client) and two technology demonstration nanosatellites from Indian startups — proving the entire ecosystem is maturing.

Key Terms:

Term	Definition
Vikram-1	Skyroot Aerospace's orbital launch vehicle; 480 kg payload to SSO; Kerolox upper stage + solid lower stage; India's first private commercial orbital rocket
Skyroot Aerospace	Hyderabad-based space startup; founded 2018 by ex-ISRO scientists Pawan Kumar Chandana and Bharat Daka; first Indian private company to reach orbit
IN-SPACe	Indian National Space Promotion and Authorisation Centre; regulator for private space; single-window clearance; established under Space Policy 2020



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SSO (Sun-Synchronous Orbit)	Orbit where satellite passes over any given point at the same local solar time daily; ideal for Earth observation (consistent lighting); 500-600 km altitude
Kerolox propulsion	Kerosene + Liquid Oxygen propellant combination; same as SpaceX Falcon 9 (Merlin engines); high performance, relatively safe, lower cost than hydrogen fuel
Space Policy 2020	India's landmark space policy opening sector to private companies; IN-SPACe created; ISRO becomes technology developer + regulator rather than sole operator
Vikram-S (2022)	Skyroot's suborbital test vehicle; launched November 2022; India's first privately developed rocket in space; preceded Vikram-1's orbital success

Important Points for UPSC:

- Significance: India becomes one of only a handful of countries (USA, Russia, China, Europe, Japan) where private companies have independently reached orbit – a technological and policy milestone
- IN-SPACe framework: Created by amendment to Space Activities Act; any Indian entity can apply for authorisation to conduct space activities; 400+ space startups registered; investment crossed \$618 million (Parliament question, this week)
- Vikram rocket family: Vikram-S (suborbital, Nov 2022) → Vikram-1 (orbital, July 2026) → Vikram-2 (planned, 800 kg to LEO) → Vikram-3 (planned, 2,000+ kg to LEO) – progressive capability buildup
- SSLV parallel: ISRO's own Small Satellite Launch Vehicle (SSLV) also targets the small satellite market; Vikram-1 competes with SSLV commercially – India's launch market is now multi-player
- Commercial satellites deployed: 3 satellites in SSO; demonstrates Vikram-1 is a viable commercial launcher; Skyroot already has launch contracts from international customers for Vikram-2
- TDB-DST connection: Technology Development Board (TDB) gave Skyroot the National Technology Startup Award 2022 (mentioned in PIB this week); TDB's early recognition vindicated by orbital success
- Global context: SpaceX Falcon 9 (USA) dominates global launch market; RocketLab (NZ/USA) leads small launcher market; Vikram-1 competes in the 100-500 kg smallsat segment – a rapidly growing market
- India's space investment: Private space investment crossed \$618 million (Parliament question this week); Skyroot raised \$68 million in Series B; Agnikul, Bellatrix also progressing – entire ecosystem validated by Vikram-1 success





DRDO KUSHA — INDIA'S FIRST LONG-RANGE SURFACE-TO-AIR MISSILE, MAIDEN FLIGHT TEST

Ministry: Ministry of Defence / DRDO / DRDL

PIB Date: 23rd July 2026

Easy Explanation

Every country that wants to defend its airspace needs Surface-to-Air Missiles (SAMs) — missiles fired from the ground that shoot down enemy aircraft, cruise missiles, ballistic missiles, and drones. India has several SAMs: the Akash (medium range, 25 km), the Barak-8 (extended range, 70 km, jointly developed with Israel), and the S-400 Triumf (long range, 400 km, purchased from Russia). But the S-400 has a problem: it is Russian. After Russia's invasion of Ukraine in 2022, CAATSA (Countering America's Adversaries Through Sanctions Act) created pressure on India for having bought it. More importantly, in a conflict, India would be dependent on Russian spare parts and software updates for its most critical long-range air defence system. Kusha — named after a sacred grass in Hindu tradition — is DRDO's answer. It is India's first indigenously developed Long-Range Surface-to-Air Missile (LRSAM), with a target range of 350 km. The maiden flight test on July 23 at the Integrated Test Range, Chandipur, Odisha was declared successful — the missile performed all planned manoeuvres and the radar-seeker acquired and tracked the target. Kusha will eventually replace reliance on the S-400 for long-range air defence and position India alongside USA, Russia, China, France, and Israel as a nation that can independently develop long-range air defence systems — one of the most technically demanding capabilities in the world.

Key Terms:

Term	Definition
Kusha LRSAM	India's first indigenous Long-Range Surface-to-Air Missile; DRDO DRDL development; range ~350 km; maiden flight test July 23, Chandipur; replaces S-400 dependency
DRDL	Defence Research and Development Laboratory, Hyderabad — DRDO's premier missile development lab; developed Agni, Akash, Prithvi, Astra, and now Kusha
S-400 Triumf	Russian long-range SAM system India purchased (5 regiments); range 400 km; can engage aircraft, cruise missiles, ballistic missiles; CAATSA sanctions risk



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CAATSA	Countering America's Adversaries Through Sanctions Act (US law); India faces secondary sanctions risk from US for S-400 purchase; Kusha reduces this strategic vulnerability
SAM (Surface-to-Air Missile)	Missile fired from ground to intercept aerial threats; range categories: SHORAD (<10 km), MRSAM (10-100 km), LRSAM (100+ km); Kusha is India's first indigenous LRSAM
Chandipur ITR	Integrated Test Range, Chandipur, Odisha – India's primary missile test facility on Bay of Bengal coast; all major DRDO missile tests conducted here
Akash vs Kusha	Akash: medium-range SAM, 25-40 km range, already inducted into IAF and Army; Kusha: long-range SAM, 350 km range, under development; together form India's layered air defence

Important Points for UPSC:

- India's layered air defence: VSHORAD (Igla-S/Stinger, <5 km) → SHORAD (Akash Mk1, 25 km) → MRSAM (Barak-8 ER, 70 km) → LRSAM (Kusha, 350 km) – Kusha completes the outermost layer
- Kusha vs S-400: S-400 (400 km range, Russian, purchased 2018-2023, CAATSA risk); Kusha (350 km range, Indian, under development); Kusha is not a like-for-like replacement immediately but provides a credible indigenous path
- Strategic significance: Long-range SAMs can protect entire cities, air bases, and naval assets from standoff cruise missiles and ballistic missiles; India's adversaries (China, Pakistan) have ballistic missiles that can strike Indian cities – Kusha directly addresses this threat
- DRDO DRDL's missile lineage: Prithvi (ballistic missile), Agni (ICBM), Akash (MRSAM), Astra (BVR air-to-air missile), LRLACM (cruise missile, Week 3 brief) – now Kusha adds LRSAM to this portfolio
- Radar-seeker performance: PIB mentioned radar-seeker acquired and tracked target in maiden test; this is critical because LRSAM must guide itself to the target; seeker performance in maiden test is a significant engineering validation
- CAATSA dimension: USA has not waived CAATSA for India's S-400 purchase; every year this remains unresolved; Kusha's development provides India a long-term exit ramp from S-400 dependency without abandoning capability
- Defence Export potential: Akash has been exported (Armenia); if Kusha reaches full development and induction, it becomes a potential export to countries seeking alternatives to Russian S-400 or US Patriot systems





- Club membership: Countries that can develop LRSAM indigenously: USA (Patriot), Russia (S-400), China (HQ-9), France (Aster 30), Israel (Arrow); India with Kusha joins this exclusive group

DRDO EXPENDABLE TURBO JET ENGINE — INDIA'S FIRST INDIGENOUS 350 KG THRUST CLASS

Ministry: Ministry of Defence / DRDO / GTRE

PIB Date: 23rd July 2026

Easy Explanation

A jet engine is the heart of any flying machine that uses jet propulsion — aircraft, cruise missiles, drones, and decoys. Until now, India imported jet engines for almost everything. The tejas fighter jet uses an American GE-F404 engine. Indian cruise missiles (Nirbhay, LRLACM) have been developing indigenous engines with varying success. The reason engine development is so hard is that a jet engine operates at extreme conditions — temperatures of 1,400-1,600 degrees Celsius inside the combustion chamber, rotational speeds of 20,000-25,000 RPM, and must sustain this for extended periods without failure. Getting the metallurgy, the aerodynamics, and the manufacturing precision right simultaneously takes decades. DRDO's Gas Turbine Research Establishment (GTRE) in Bengaluru announced the successful development of India's first Expendable Turbo Jet Engine in the 350 kg thrust class. 'Expendable' means the engine is designed for single-use applications — cruise missiles, decoy drones, target drones — where the vehicle is not recovered after use, so the engine does not need a long service life. This is strategically important because expendable turbo jet engines power two critical systems: cruise missiles (like LRLACM, covered in Week 3) and air-launched decoys (which confuse enemy radar by mimicking a real aircraft while the actual aircraft attacks from another direction).

Key Terms:

Term	Definition
Expendable Turbojet Engine	Single-use jet engine for cruise missiles and drones; 350 kg thrust; developed by DRDO GTRE; no need for long service life — designed for one mission
GTRE	Gas Turbine Research Establishment, Bengaluru — DRDO lab specialising in jet engine development; also developed Kaveri engine for Tejas (partial success)





Thrust (kg)	Measure of engine pushing force; 350 kg thrust class is suitable for cruise missiles, UAVs, and decoy vehicles; significantly less than a fighter jet engine (5,000+ kg)
Kaveri Engine	GTRE's ambitious project for a fighter jet engine for Tejas; technically proven but not inducted due to thrust shortfall; valuable R&D leading to expendable engine success
Cruise Missile propulsion	Cruise missiles need small, fuel-efficient, lightweight jet engines; LRLACM (Week 3 brief) used 'Manik' turbofan; this expendable engine is likely for a different but related application
Decoy vehicle	Aircraft or missile that mimics a real aircraft on radar to confuse air defences; powered by expendable jet engines; makes enemy SAM systems engage decoys instead of real missiles
350 kg thrust significance	350 kg thrust can sustain a 500-800 kg vehicle at 0.6-0.8 Mach speed for 200-500 km; sufficient for cruise missiles, tactical drones, and air-launched decoy systems

Important Points for UPSC:

- GTRE + Kaveri context: Kaveri engine (for Tejas) failed to meet thrust requirements (targeting 80 kN, achieved 75 kN); but materials, combustion, and manufacturing knowledge from Kaveri program directly enabled this expendable engine – R&D is rarely wasted
- Strategic dependence elimination: India currently imports Williams International (USA) and Microturbo (France) engines for cruise missile applications; domestic expendable engine eliminates this supply chain vulnerability
- Manik vs this engine: LRLACM's 'Manik' turbofan (Week 3) and this expendable turbojet are related but different applications; turbofan is more fuel-efficient (suitable for longer range); turbojet is simpler, lighter, cheaper (suitable for shorter range expendable use)
- AEW&C Mk-II connection: This week also saw DRDO ink contracts for AEW&C Mk-II (Netra's successor on Airbus A321); that aircraft uses imported engines but its subsystems are indigenous – engine indigenisation is a parallel track
- Export potential: Countries that want cruise missiles but cannot get engines from USA or Russia (due to sanctions/supply restrictions) are potential customers for an Indian expendable turbojet – strategic market





- Manufacturing indigenisation: Engine manufacturing requires precision casting of turbine blades (single-crystal superalloys), advanced coatings, and tight tolerances; GTRE's success signals that Indian manufacturing has crossed a critical threshold

CDSCO APPROVES INDIA'S FIRST DENGUE VACCINE — DENVAX

Ministry: Ministry of Health and Family Welfare / CDSCO

PIB Date: 21st July 2026

Easy Explanation

Dengue fever infects 390 million people worldwide every year, kills approximately 40,000, and causes economic losses of \$9 billion annually just in direct healthcare costs. In India, dengue is a year-round problem that peaks during and after the monsoon – when the *Aedes aegypti* mosquito that carries the dengue virus breeds in stagnant water. India reports 2-3 lakh dengue cases officially each year but actual cases (including unreported ones) are estimated at 10-15 crore annually. The dengue virus has four serotypes (DENV-1, DENV-2, DENV-3, DENV-4) and this creates a dangerous biological trap: if you are infected with one serotype and recover, you have immunity to that serotype but getting infected by a different serotype later causes a much more severe disease (Dengue Haemorrhagic Fever or Dengue Shock Syndrome) – because your antibodies from the first infection actually enhance the second infection's severity, a phenomenon called Antibody-Dependent Enhancement (ADE). This is why dengue vaccine development is so difficult – the vaccine must protect against all four serotypes simultaneously. The Central Drugs Standard Control Organisation (CDSCO) this week approved India's first dengue vaccine – Denvax – developed by Zydus Lifesciences (Cadila Healthcare). Denvax is a live-attenuated tetravalent vaccine, meaning it contains weakened (but live) versions of all four dengue serotypes, stimulating the immune system to build protection against all four simultaneously.

Key Terms:

Term	Definition
Denvax	India's first approved dengue vaccine; developed by Zydus Lifesciences; live-attenuated tetravalent vaccine; approved by CDSCO for ages 6-45 years; 3-dose regimen
CDSCO	Central Drugs Standard Control Organisation – India's apex drug and medical device regulator; under DGHS, MoHFW; equivalent to USA's FDA; approves drugs, biologicals, vaccines





Dengue serotypes	Dengue virus has 4 serotypes (DENV-1,2,3,4); infection by one provides immunity to that serotype but not others; second infection by different serotype can cause severe disease
ADE (Antibody-Dependent Enhancement)	Biological phenomenon where antibodies from a prior dengue infection enhance severity of a second infection by a different serotype; key challenge in vaccine design
Live-attenuated vaccine	Vaccine using weakened (live but non-pathogenic) form of the pathogen; produces strong, long-lasting immunity; used for MMR, chickenpox, yellow fever, rotavirus
Tetravalent	Vaccine that provides protection against all 4 dengue serotypes simultaneously; essential for dengue vaccine to work without triggering ADE; tetravalent = 4-in-1
Dengvaxia (Sanofi)	World's first approved dengue vaccine (2015, Sanofi Pasteur); caused controversy in Philippines – caused worse disease in those not previously infected; Denvax learned from these mistakes

Important Points for UPSC:

- Dengue burden in India: 2-3 lakh reported cases/year; actual estimated 10-15 crore/year (90%+ unreported or misdiagnosed as fever); deaths: 300-500 officially but actual significantly higher
- Zydus Lifesciences: Ahmedabad-based pharma company; among India's largest; DENVAX development took 15+ years; clinical trials in India showed 76% efficacy against DENV-1 and DENV-3 serotypes
- CDSCO approval conditions: Approved for ages 6-45 years; 3-dose schedule (0, 1, 12 months); recommended only for those previously infected with dengue (seropositive) to avoid ADE risk – same lesson learned from Dengvaxia Philippines controversy
- Dengvaxia (Philippines) tragedy: Sanofi's dengue vaccine given to 800,000 children in Philippines in 2016-17; some children without prior dengue infection developed severe dengue upon infection after vaccination; 14 deaths linked; programme cancelled; India's approval restricts Denvax to seropositive individuals to avoid this
- Aedes aegypti mosquito: Breeds in clean stagnant water (flower pots, coolers, tyres); urban mosquito; bites during daytime (unlike malaria mosquito which bites at night); vector control + vaccine = combined dengue prevention strategy
- WHO position: WHO endorses dengue vaccines only after serotesting to confirm prior infection; Denvax's restricted approval is consistent with WHO's careful position – learned from Philippines





- Universal immunisation link: If dengue seroprevalence surveys confirm high prior-exposure rates in India (likely in endemic states – Kerala, Tamil Nadu, Rajasthan, Delhi), Denvax could be added to Universal Immunisation Programme for older children

16TH BRICS HEALTH MINISTERS' MEETING – CHANDIGARH

Ministry: Ministry of Health and Family Welfare

PIB Date: 22nd–23rd July 2026

Easy Explanation

The 16th BRICS Health Ministers' Meeting in Chandigarh (July 22-23) under India's BRICS chairship 2026 produced a Joint Declaration that covered three headline themes: Traditional and Complementary Medicine (TCIM), pandemic preparedness, and antimicrobial resistance (AMR). The TCIM dimension is particularly significant. BRICS nations have some of the world's richest traditional medicine traditions – India (Ayurveda, Yoga, Unani, Siddha), China (Traditional Chinese Medicine, TCM), Russia (phytotherapy and traditional practices), Brazil (Amazon herbal medicine, candomblé-linked healing), South Africa (Ubuntu-influenced traditional healing). For decades, these traditions were treated as unscientific by the global health establishment. The Chandigarh Declaration marks a shift – BRICS nations jointly committed to establishing scientific standards for TCIM, integrating TCIM into national health systems with evidence-based protocols, and creating a BRICS TCIM Expert Working Group to develop common quality and safety standards. On pandemic preparedness, the declaration called for a BRICS Early Warning Network for emerging infectious diseases – sharing genomic surveillance data within 24 hours of detecting novel pathogens. On AMR, BRICS nations committed to the 'One Health' approach – recognising that antimicrobial resistance in animals (from veterinary overuse of antibiotics) directly creates resistant bacteria in humans.

Key Terms:

Term	Definition
TCIM	Traditional and Complementary and Integrative Medicine – WHO's umbrella term covering Ayurveda, TCM, herbal medicine, homeopathy, naturopathy, yoga therapy; BRICS committed to evidenced-based integration
Chandigarh Declaration	Joint statement from 16th BRICS Health Ministers' Meeting; three pillars: TCIM integration, pandemic early warning network, AMR One Health approach





AMR (Antimicrobial Resistance)	Bacteria, viruses, fungi evolving to resist antibiotics and other antimicrobials; WHO calls it one of top 10 global health threats; kills 1.3 million directly annually
One Health	Approach recognising human, animal, and environmental health are interconnected; AMR spreads from animals to humans via food chain; requires coordinated response across sectors
BRICS Early Warning Network	Proposed genomic surveillance sharing system; novel pathogen detected in any BRICS nation shared within 24 hours; lessons from COVID-19 delayed reporting
BRICS TCIM Expert Working Group	New working group to develop common quality, safety, and efficacy standards for traditional medicine across BRICS nations; India leads given WHO GCTM Centre in Jamnagar
WHO GCTM	WHO Global Centre for Traditional Medicine, Jamnagar, Gujarat – established 2022; world's first WHO centre specifically for traditional medicine; India proposed and hosts it

Important Points for UPSC:

- India's BRICS Health leadership: India chairs BRICS 2026; health ministers meeting is a ministerial-level achievement; Chandigarh Declaration will be India's key deliverable in BRICS health cooperation
- TCIM significance: TCM (Traditional Chinese Medicine) is China's most important soft power export; India with WHO GCTM in Jamnagar is positioning AYUSH as an equally credible global TCIM system; Chandigarh Declaration gives both systems multilateral legitimacy
- AMR crisis data: India has one of the world's highest AMR burdens – 1 million deaths attributed annually to AMR-related infections; overuse of antibiotics in poultry farms (India is world's 3rd largest poultry producer) is a major driver of AMR
- One Health framework: BRICS nations agree to implement national One Health AMR Action Plans – coordinating health ministry (human AMR), agriculture ministry (veterinary AMR), and environment ministry (environmental AMR) in a single framework
- Cancer care update: PIB also revealed 'Availability of Cancer Care Centres' update in the health releases; India has 450+ cancer hospitals but significant regional disparity – Northeast and rural areas severely underserved





- HPV vaccination: PIB noted update on HPV Vaccination Programme; India added HPV vaccine to UIP in 2024 for girls aged 9-14; Cervical cancer prevention directly reduces women's cancer burden (cervical cancer is India's 2nd most common cancer in women)
- ICMR cancer technologies: ICMR transferred three biomedical technologies for cancer and infectious disease this week – connects to BRICS health meeting's focus on technology sharing

BHAVYA RASAYAN — CABINET APPROVES CHEMICAL PARKS SCHEME

Ministry: Ministry of Chemicals and Fertilizers

PIB Date: 24th July 2026

Easy Explanation

India's chemical industry is the 6th largest in the world by output – worth \$220 billion – but its import dependence in high-value specialty chemicals and agrochemicals is a structural weakness. India imports Rs 4-5 lakh crore worth of chemicals annually, primarily from China. This import dependence has two dimensions. First, a strategic supply chain risk: during COVID-19, when China shut down its chemical plants, India's pharma industry (which depends on Chinese Active Pharmaceutical Ingredients, or APIs) was hit severely – a vulnerability that triggered the API PLI scheme. Second, an economic opportunity missed: global chemical companies are actively looking for China+1 destinations for chemical manufacturing, and India could capture a significant share if it provides the right infrastructure. BHAVYA Rasayan (Bharat Audyogik Vikas Yojana Rasayan) – Cabinet approved on July 24 – is India's PLI-type scheme for creating dedicated Chemical Parks. Unlike general industrial areas, Chemical Parks provide specialised shared infrastructure: effluent treatment plants (ETPs) that can handle hazardous chemical waste, common solvent recovery systems, explosion-proof utilities, safety and emergency response systems, and trained chemical handling workforce. Individual chemical companies cannot afford these at small scale – a common chemical park makes them viable. BHAVYA Rasayan provides capital support for developing these parks in 10 states, targeting a Rs 50,000 crore investment over 5 years and an import substitution of Rs 30,000 crore annually by 2030.

Key Terms:

Term	Definition
BHAVYA Rasayan	Bharat Audyogik Vikas Yojana Rasayan – Cabinet-approved scheme for Chemical Parks; provides shared ETP, safety, and utilities infrastructure; Rs 50,000 crore investment target



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Chemical Park	Dedicated industrial zone for chemical manufacturing with shared hazardous waste treatment, solvent recovery, explosion-proof utilities; reduces individual company infrastructure cost
ETP (Effluent Treatment Plant)	Facility that treats chemical manufacturing wastewater before discharge; mandatory for chemical factories; shared ETP in a park reduces cost from Rs 50-100 crore per company to Rs 5-10 crore
Specialty Chemicals	High-value, low-volume chemical products for specific uses – agrochemical intermediates, dyes, pharma intermediates, electronic chemicals; India strong in bulk chemicals but weak in specialty
API dependence	Active Pharmaceutical Ingredient; India imports 70% of APIs from China; COVID-19 exposed this; API PLI (Rs 6,940 crore, 2020) partially addressed this; BHAVYA Rasayan accelerates upstream chemical self-sufficiency
China+1 opportunity	Global companies diversifying chemical manufacturing from China; India, Vietnam, Thailand are targets; BHAVYA Rasayan creates the infrastructure to attract these investments to India
Agrochemical intermediates	Chemical building blocks for pesticides and herbicides; China controls 70% of global supply; Indian companies import these to make finished agrochemicals; BHAVYA Rasayan targets domestic production

Important Points for UPSC:

- India's chemical industry: Rs 18 lakh crore revenue; 6th globally; but import-export balance is negative – India imports Rs 4-5 lakh crore and exports Rs 2.5-3 lakh crore; net importer despite being a large producer
- Chemical park model: Existing PCPIR (Petroleum, Chemicals and Petrochemicals Investment Region) – Dahej (Gujarat), Vizag (AP), Cuddalore (TN) – showed the concept works; BHAVYA Rasayan scales it to chemicals broadly, not just petrochem
- 10 states targeted: Gujarat, Maharashtra, AP, TN, Karnataka, Rajasthan, MP, UP, Odisha, West Bengal – states with existing chemical manufacturing presence; cluster effect amplifies benefit
- Safety dimension: Chemical parks reduce accident risk by centralising hazardous material storage, common firefighting systems, trained emergency response teams; India's Bhopal Gas Tragedy (1984) history makes chemical safety a politically sensitive topic





- Electronic chemicals opportunity: Semiconductor fabs (Tata Electronics, Micron – covered in Weeks 6-7) need ultra-pure chemical supplies; BHAVYA Rasayan parks in Tamil Nadu and Gujarat can supply these fabs
- Agrochemical India: India is 4th largest agrochemical producer globally (\$5 billion); but imports Rs 15,000 crore of agrochemical intermediates from China; BHAVYA Rasayan can cut this in half over 5 years
- Green chemistry dimension: New BHAVYA Rasayan parks will mandate green chemistry standards – water-neutral production, zero liquid discharge (ZLD), renewable energy use; first time Indian chemical policy explicitly incorporates sustainability

INDIA'S 8TH WTO TRADE POLICY REVIEW — REAFFIRMING MULTILATERALISM

Ministry: Ministry of Commerce & Industry / WTO

PIB Date: 21st–23rd July 2026

Easy Explanation

Every WTO member country undergoes a Trade Policy Review (TPR) – a regular examination where other WTO members scrutinise the country's trade policies, ask questions, and the country explains its trade regime. India underwent its 8th Trade Policy Review in Geneva on July 21 and 23. The TPR is not a compliance enforcement mechanism – countries cannot be penalised in TPR. It is a transparency exercise. But it is diplomatically significant because it is the world's most comprehensive peer review of a country's trade policies, conducted before representatives of all 164 WTO members. India's key messages at TPR 8: (1) Reaffirmation of rules-based multilateral trading system – India supports the WTO dispute settlement mechanism even as the Appellate Body remains paralysed (since 2019, when USA blocked all appointments, leaving it without quorum); (2) India's PLI schemes have attracted Rs 2.40 lakh crore in investment and generated 14.15 lakh jobs – presented as evidence that industrial policy is compatible with WTO rules when applied on a non-discriminatory basis; (3) India's services exports reached \$421.3 billion in FY2025-26 – highest ever – demonstrating India's comparative advantage in IT, business services, and professional services; (4) India's expanding FTA network (UK CETA in force, EU FTA in progress, ASEAN review, Maldives first round) demonstrates India's bilateral trade strategy complementing multilateralism.

Key Terms:

Term	Definition
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WTO Trade Policy Review (TPR)	Regular transparency examination of WTO member's trade policies; India's 8th review; Geneva; all 164 members participate; no penalties – only scrutiny and questions
WTO Appellate Body crisis	USA blocked appointments to WTO's appeals court since 2017; Appellate Body lost quorum in 2019; cannot hear new appeals; WTO dispute settlement effectively paralysed for complex cases
TRIPS (Trade-Related IP Rights)	WTO agreement on intellectual property protection; India's compulsory licensing provisions for generic medicines are a recurring point of discussion in TPR
PLI WTO compatibility	India argued PLI schemes are not prohibited subsidies because they support production based on performance thresholds, not export requirements; contentious point in TPR
India's services exports	India's services exports: \$421.3 billion in FY2025-26; IT/BPO services dominant; growing in financial services, education, healthcare tourism; 4th largest services exporter globally
Fisheries Subsidies Agreement	India accepted WTO Agreement on Fisheries Subsidies this week (July 20); disciplines harmful subsidies that lead to overfishing; significant because India is world's 2nd largest fish producer

Important Points for UPSC:

- TPR 8 focus areas: PLI schemes, FTA expansion, digital trade, agricultural subsidies, IP protection for pharma; developed countries raised concerns about India's import tariffs (among world's highest at 15% average MFN) and data localisation requirements
- India's fisheries subsidies acceptance (July 20): India became a party to WTO Fisheries Subsidies Agreement – commits to eliminating subsidies that contribute to illegal, unreported, and unregulated (IUU) fishing; India had been a hold-out due to concerns about subsidies to small fishermen
- Services export milestone: \$421.3 billion in FY2025-26 – 11.4% growth from previous year; India is among the world's top services exporters; telecom/computer services and business services are the largest components
- PLI investment data: Rs 2.40 lakh crore investment attracted across PLI sectors; 14.15 lakh direct jobs created; India presented this as evidence that PLI is investment promotion, not protectionism – important WTO narrative





- Agricultural subsidies tension: India's food subsidy (for PDS rice/wheat) has been a contentious point at WTO; India exceeded its agreed subsidy ceiling; India argues this is food security, not trade-distorting subsidies – ongoing dispute
- New India Core Industries Index: India also released its first revised Index of Core Industries (base year 2022-23) this week – 8 core industries (coal, crude oil, natural gas, refinery products, fertilisers, steel, cement, electricity); improved methodology aligns with new economic reality

INDIA ACCEPTS WTO AGREEMENT ON FISHERIES SUBSIDIES

Ministry: Ministry of Commerce & Industry / Ministry of Fisheries

PIB Date: 20th July 2026

Easy Explanation

The world's oceans are being overfished. Of the world's marine fish stocks that have been assessed, 35% are currently being exploited at biologically unsustainable levels – meaning fish are being caught faster than they can reproduce. A major driver of this overfishing is government subsidies to fishing fleets. Countries subsidise diesel for fishing boats, give low-interest loans for bigger vessels, and build fishing harbour infrastructure – all of which make it profitable to fish even when fish stocks are depleted. The WTO Agreement on Fisheries Subsidies, adopted at MC12 (12th Ministerial Conference, Geneva, June 2022), is the first WTO agreement in 20+ years specifically aimed at protecting the environment. It disciplines three categories of subsidies: (1) Subsidies for Illegal, Unreported and Unregulated (IUU) fishing – completely prohibited; (2) Subsidies to fishing in overfished waters – prohibited; (3) Subsidies to fishing in unregulated waters – subject to discipline. India, the world's 2nd largest fish producer (8.6 million tonnes annually, behind only China), had been a hold-out. India's position was that its subsidies (diesel, boat building, fishing harbour construction) primarily benefit small artisanal fishermen – not industrial fleets that overfish – and that developed countries with industrial fleets should bear more of the discipline. India finally deposited its instrument of acceptance on July 20, making it one of the last major fishing nations to join. The agreement will come into force when two-thirds of WTO members (110+) have accepted it.

Key Terms:

Term	Definition
WTO Fisheries Subsidies Agreement	MC12 (June 2022) agreement; disciplines government subsidies that contribute to overfishing; first WTO environmental agreement in 20+ years; India accepted July 20



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IUU Fishing	Illegal, Unreported and Unregulated fishing – fishing in violation of national or international laws; responsible for 20%+ of global catch; subsidising IUU fishing is now prohibited under WTO
MC12	12th WTO Ministerial Conference, Geneva, June 2022; adopted Fisheries Subsidies Agreement; India had reservations at MC12 but eventually accepted in July 2026
Artisanal fishermen	Small-scale, traditional fishermen using small boats; India has 28 lakh registered marine fishermen; India argued these should be exempt from fisheries subsidies disciplines
India's fish production	India's fish production: 8.6 million tonnes (2024-25); 2nd globally after China; marine fisheries 4.1 million tonnes; inland fisheries 4.5 million tonnes; Blue Economy contribution Rs 2.5 lakh crore
PMMSY (Blue Revolution)	Pradhan Mantri Matsya Sampada Yojana – Rs 20,050 crore scheme for fisheries; subsidies for boats, cold chain, ports; PMMSY subsidies are now subject to WTO disciplines

Important Points for UPSC:

- India's fisheries sector: 2.8 crore fishermen (including 28 lakh marine); world's 2nd largest fish producer; 4th largest exporter (\$7.7 billion); shrimp is 70% of export value
- India's acceptance conditions: India accepted with a specific interpretive note – stating that its subsidies to small and artisanal fishermen (boats <24 metres in length) will be reviewed separately and should receive special and differential treatment
- PMMSY subsidies at risk: India provides diesel subsidies to fishing boats, grants for vessel construction, and fishing harbour development under PMMSY; these will now need to be assessed against WTO disciplines – potential reform needed
- Two-thirds threshold: Agreement comes into force when 110+ WTO members accept; as of India's acceptance, approximately 65-70 members had accepted; India's acceptance as a major fishing nation is critical for reaching the threshold
- Blue Economy link: India's Blue Economy aims to double the sector's contribution to GDP; fisheries subsidies reform under WTO is an international obligation that will shape how India can support its fisheries sector under Blue Economy policy
- China's hold-out: China (world's largest fishing nation and the biggest subsidiser of fishing) has not yet accepted the agreement; this is a major gap in the agreement's effectiveness – China's fleets are the primary cause of overfishing in international waters





- Small Island Developing States (SIDS) dimension: SIDS countries depend almost entirely on fisheries; agreement has special carve-outs for SIDS and least developed countries; India's acceptance note aligns with SIDS concerns about artisanal exemptions

AMUL BENGAL DAIRY PROJECT — BHOOMI PUJAN FOR WORLD'S LARGEST CURD PLANT

Ministry: Ministry of Cooperation / NDDB / AMUL

PIB Date: 19th July 2026

Easy Explanation

AMUL — Anand Milk Union Limited — is one of India's greatest economic success stories. Started in 1946 in Anand, Gujarat by Tribhuvandas Patel and Verghese Kurien, it grew into the world's largest dairy cooperative, with 36 lakh milk producer members, Rs 72,000 crore annual turnover, and products sold in 65 countries. AMUL is the face of India's White Revolution — Operation Flood (1970-1996), the world's largest agricultural development programme, which tripled milk production and made India the world's largest milk producer (240 million tonnes per year, more than USA and EU combined). Now AMUL is expanding into West Bengal — a state that has historically had a separate dairy cooperative system (Mother Dairy Bengal, Banglar Dairy) and where the cooperative model has not achieved the scale seen in Gujarat. Home Minister Amit Shah performed the Bhoomi Pujan (ground-breaking) ceremony for the Amul Bengal Dairy Project's centrepiece — a curd manufacturing plant that, when complete, will be the world's largest curd production facility. West Bengal, with 10 crore people and a strong curd (mishti doi, dahi) consumption culture, is the ideal location. The project will also build procurement infrastructure — chilling centres and milk collection networks across Bengal's rural areas — connecting 5 lakh+ farmers to the formal cooperative dairy supply chain.

Key Terms:

Term	Definition
AMUL	Anand Milk Union Limited — world's largest dairy cooperative; Gujarat; Rs 72,000 crore turnover; 36 lakh milk producer members; managed by GCMMF (Gujarat Co-operative Milk Marketing Federation)
White Revolution	Operation Flood (1970-1996) — world's largest agricultural development programme; launched by NDDB; tripled India's milk production; made India world's largest milk producer



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NDDB	National Dairy Development Board – Anand, Gujarat; apex body for dairy cooperative development; implements dairy development programmes; chaired by Dr Meenesh Shah
Bengal dairy project	AMUL's expansion into West Bengal; centrepiece is world's largest curd manufacturing plant; Bhoomi Pujan July 19; will connect 5 lakh+ Bengal farmers to cooperative supply chain
Mishti Doi (Bengali Sweet Curd)	Traditional Bengali fermented milk product; set in earthen pots; high cultural significance; West Bengal's distinctive curd culture makes it ideal for this plant
Cooperative vs corporate dairy	AMUL model: farmer-owned cooperative captures value for producers; private dairies (Heritage, Paras, Dodla) pay farmers less and extract profit for investors; Bharat Taxi (Week 6) follows same cooperative logic

Important Points for UPSC:

- India's dairy sector: 240 million tonnes milk production (world's largest); Rs 12 lakh crore sector; 8 crore dairy farmer households; milk is India's largest agricultural commodity by value – more than rice or wheat
- West Bengal dairy gap: WB has 10 crore people; significant milk deficit (produces less than it consumes); relies on imports from UP, Bihar; AMUL Bengal project will reduce this deficit and pay farmers better prices
- World's largest curd plant: Plant will have capacity of 10 lakh litres of curd production per day; dahi (curd) consumption is growing 15-20% annually in India as protein awareness rises; strategic product choice
- AMUL's cooperative model vs Bharat Taxi: Both use the cooperative ownership model; AMUL pays farmers 80% of consumer price; Bharat Taxi pays drivers 95% of fare; Ministry of Cooperation (Amit Shah) is promoting this model across sectors – Bharat Taxi (transport), AMUL Bengal (dairy), LokOS (rural commerce)
- Bangladesh border dimension: West Bengal borders Bangladesh; dairy products can be exported; AMUL Bangladesh exports already happen via private channels; Bengal plant creates formal export infrastructure
- Cold chain infrastructure: Amul Bengal project will build 50+ bulk milk coolers across WB districts; cold chain for milk is replicable for fruits, vegetables, fish – creates shared cold chain infrastructure beyond just dairy





- Cooperative politics: Bengal has long been a Left-leaning state where cooperatives are associated with CPM's panchayat network; BJP-run Centre promoting AMUL in Bengal = cooperative model being used as both economic and political instrument

INDIA'S RENEWABLE ENERGY — 288.58 GW INSTALLED CAPACITY, NEARLY 4X SINCE 2014

Ministry: Ministry of New and Renewable Energy

PIB Date: 22nd July 2026

Easy Explanation

India's renewable energy story is one of the most dramatic infrastructure transformations in the world. In 2014, India had 76 GW of renewable energy installed capacity — mostly old hydropower. By June 30, 2026, this had grown to 288.58 GW — a nearly 4-fold increase in 12 years. To put this in perspective: the UK's entire electricity generation capacity from all sources is about 100 GW. India added nearly 215 GW of renewable capacity in 12 years — the equivalent of adding 2 UKs worth of generation. The breakdown: Solar power is now the largest component at 97.86 GW (massive rooftop solar, utility-scale projects in Rajasthan and Gujarat); Wind power reached 57,443 MW as of June 30 (primarily in Tamil Nadu, Rajasthan, Gujarat, Maharashtra, Karnataka); Large hydropower is 47+ GW (Bhakra, Tehri, Sardar Sarovar and hundreds of others); and Small hydro, biomass, biogas, and other renewables make up the rest. India's total installed electricity generation capacity from all sources is now 1,050+ GW — making India the world's 3rd largest electricity system by installed capacity. The renewable share of installed capacity is now 45%+. This crosses the psychological threshold where renewables are no longer a 'supplement' to conventional power but the primary capacity being added. But installed capacity is not the same as generation: renewables contribute 33% of actual electricity generation (lower than 45% capacity share because solar and wind don't operate 24/7).

Key Terms:

Term	Definition
288.58 GW	India's total renewable energy installed capacity as of June 30, 2026; solar 97.86 GW; wind 57.44 GW; large hydro 47 GW; small hydro, biomass, others make up balance
500 GW by 2030 target	India's NDC target: 500 GW non-fossil fuel electricity capacity by 2030; currently at 288 GW (including large hydro) — needs 212 GW more in 4 years; challenging but not impossible





Capacity vs generation	Installed capacity (GW) = maximum power output; generation (GWh) = actual electricity produced; renewable capacity is 45%+ but generation is 33% because solar/wind operate only 8-12 hours/day
CUF (Capacity Utilisation Factor)	% of time a power plant generates at full capacity; solar CUF ~20-25%; wind CUF ~28-35%; coal CUF ~60-70%; coal generates more per GW installed despite having less total capacity
PM KUSUM	Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan – solar for agriculture; solar pumps replacing diesel pumps; solar panels on land around pump; farmer earns from surplus power
RE Target architecture	500 GW by 2030: Solar ~300 GW, Wind ~140 GW, Large Hydro ~47 GW, Small Hydro/Other ~13 GW – government has tender pipeline for 100+ GW solar, 70+ GW wind to meet 2030 target

Important Points for UPSC:

- Solar growth: India crossed 100 GW solar in January 2026; as of June 2026 at 97.86 GW (slight drop due to capacity reclassification); India is world's 4th largest solar market after China, USA, Germany
- Wind power: 57,443 MW as of June 30; primarily onshore; offshore wind (Gujarat and Tamil Nadu coastlines) is the next frontier – India's first offshore wind tender was issued in 2023 for 1 GW each
- 4x growth drivers: PM's solar manufacturing push (PLI for solar modules), viability gap funding for solar parks, renewable purchase obligations on DISCOMs, international Green Climate Fund support
- Grid integration challenge: 45% renewable capacity creates grid balancing challenges – solar peaks at noon, demand peaks at 7-10 PM; Pumped Storage Projects (PSP) are critical; India's PSP capacity is only 4.7 GW (needs 40+ GW by 2030)
- Renewable energy jobs: 1.1 million direct jobs in renewable energy sector (solar installation, wind turbine maintenance, manufacturing) – IRENA data; fastest-growing employment sector in India's energy economy
- Coal context: India still has 210 GW of coal power; coal generates 50%+ of India's electricity; renewables are growing but coal is not declining – India is adding renewables ON TOP of existing coal, not replacing it yet





- India-Australia Civil Nuclear link: Civil nuclear (Week 7) + renewables (this week) + green hydrogen (Week 5) = India's complete decarbonisation architecture; each covers a different segment of the energy transition

99.6% BROAD GAUGE ELECTRIFICATION – INDIA 2ND ONLY TO SWITZERLAND

Ministry: Ministry of Railways

PIB Date: 22nd July 2026

Easy Explanation

Indian Railways runs on the world's largest broad gauge (1,676 mm) network. Electrifying a railway line means replacing diesel locomotives with electric locomotives that draw power from overhead wires – making rail travel cleaner, faster, and cheaper to operate. India had only 21,000 km of electrified railway in 2014 – out of a total broad gauge network of 65,000 km. In 12 years (2014-2026), India added 46,000 km of electrification – an average of 3,800 km per year. Today, 99.6% of the broad gauge network (approximately 63,950 km out of 64,200 km) is electrified. The only country in the world with a higher proportion of electrified railway is Switzerland (100%). This is a staggering achievement given the scale – India's electrified railway network is now larger than the entire railway networks of France, Germany, or the UK. The remaining 0.4% (approximately 250 km) consists of extremely remote, difficult-terrain sections in the Northeast, J&K, and tribal areas where conventional electrification is impractical – these will be addressed through hydrogen train technology (covered in Week 7) or solar-powered battery trains. The operational benefit: electric locomotives are 3x more energy-efficient than diesel, significantly cheaper per km to operate (electricity vs diesel costs), and can achieve higher speeds. Indian Railways' commitment to 'Net Zero by 2030' depends entirely on this electrification achievement.

Key Terms:

Term	Definition
99.6% electrification	Indian Railways has electrified 99.6% of its broad gauge network (63,950 of 64,200 km); only Switzerland (100%) is higher globally; achieved by adding 46,000 km in 2014-2026
Broad Gauge	Track width of 1,676 mm (5 ft 6 in); India's standard gauge; world's largest broad gauge network; all main line and most branch lines; some narrow gauge in heritage/hill railways





25 kV AC electrification	India's standard overhead electrification system; 25,000 volts alternating current; same as France and most European railways; WAP and WAG series electric locomotives use this
WAP/WAG locomotives	WAP = passenger electric locomotive (Wheel Arrangement Passenger); WAG = goods/freight electric locomotive; 12,000+ electric locomotives on Indian Railways fleet
Net Zero 2030	Indian Railways' commitment to achieve net zero carbon emissions by 2030; world's first major railway to make this commitment; 99.6% electrification is the primary enabler
Remaining 0.4% challenge	250 km of non-electrified track in remote Northeast, J&K, tribal areas; difficult terrain; may use hydrogen trains, battery-electric, or remain diesel for strategic reasons

Important Points for UPSC:

- 2014 baseline: 21,000 km electrified (33% of BG network); 2026: 63,950 km (99.6%); addition of 46,000 km in 12 years = 10.5 electrification projects per day, every day, for 12 years – an organisational achievement matching the technical one
- Cost saving: Diesel fuel for Indian Railways cost Rs 16,000 crore/year in 2014; electrification has reduced this by Rs 14,000+ crore annually as electric traction is 4-5x cheaper per km than diesel
- Speed benefit: Diesel locomotives: max 110 km/h; Electric locomotives (WAP-7): max 130 km/h; Vande Bharat (electric EMU): 160 km/h; electrification enables speed upgrades across the network
- Environmental: 99.6% electrification + increasing renewable energy share in India's electricity grid means IR's carbon footprint per passenger-km is falling rapidly; when grid is 100% renewable, IR will be carbon-zero operationally
- Mission Electrification: A specific sub-mission under the broader Mission 100% electrification; Central Organisation for Railway Electrification (CORE) is the nodal agency
- Switzerland comparison: Switzerland has 100% electrification but only 3,600 km of track; India has 63,950 km of electrified track – 17x more in absolute terms; India's scale makes this achievement far more significant
- Connects to hydrogen trains (Week 7): The remaining 0.4% non-electrified track (250 km in remote areas) is exactly where hydrogen fuel cell trains are planned – RDSO's hydrogen train is designed for these specific routes





DRDO AEW&C Mk-II — CONTRACTS SIGNED FOR NETRA'S SUCCESSOR

Ministry: Ministry of Defence / DRDO / CABS

PIB Date: 22nd July 2026

Easy Explanation

We covered IAF Netra receiving Final Operational Clearance (FOC) in Week 5 – India's first indigenous AEW&C system mounted on the Embraer ERJ-145. This week, DRDO inked two major contracts with industry partners as part of the AEW&C Mk-II programme – the successor to Netra. AEW&C Mk-II is a significantly more capable system in three ways. First, the platform: instead of the relatively small Embraer ERJ-145 (which seats ~50 in commercial configuration), the Mk-II will be mounted on the Airbus A321 – a much larger narrowbody aircraft. The larger aircraft means more fuel, longer endurance (12+ hours vs Netra's 8 hours), more space for additional operators and mission systems, and better radar placement. Second, the radar: Mk-II will use a next-generation AESA (Active Electronically Scanned Array) radar with Gallium Nitride (GaN) Transmit-Receive Modules (TRMs) instead of the older Gallium Arsenide (GaAs) TRMs in Netra. GaN TRMs provide 3-5x more power per unit, meaning the radar can see farther, see smaller targets, and is harder to jam. Third, the system integration: Mk-II will have enhanced battle management, satellite communication links, and the ability to control India's growing fleet of armed drones from the air. The two contracts signed this week are with TATA Advanced Systems (for airframe integration and system housing) and BEL (Bharat Electronics Limited, for radar sub-systems) – both Indian defence companies, ensuring genuine Atmanirbhar system development.

Key Terms:

Term	Definition
AEW&C Mk-II	Successor to IAF Netra; Airbus A321 platform (vs Netra's ERJ-145); GaN AESA radar (vs GaAs in Netra); 12+ hour endurance; contracts with TATA Advanced Systems and BEL
Airbus A321	Narrowbody commercial aircraft; 180-220 passenger capacity; 12+ hour range; chosen as Mk-II platform for its internal volume, fuel capacity, and structural flexibility for mission system integration
GaN (Gallium Nitride)	Semiconductor material for radar transmit-receive modules; 3-5x more power than GaAs (Gallium Arsenide); enables longer detection range, smaller targets, better anti-jamming; next generation radar technology



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TATA Advanced Systems	TATA Group's defence aerospace company; partners with Boeing, Airbus, Lockheed Martin; selected for AEW&C Mk-II airframe integration and system housing
BEL (Bharat Electronics Limited)	Defence PSU; Bengaluru; manufactures radar, communication, electronic warfare systems; selected for AEW&C Mk-II radar sub-systems
Battle Management System (BMS)	Software that integrates radar data, communication, and displays to give operators a common operational picture; Mk-II BMS will also interface with IAF's drone fleet
6 aircraft planned	IAF wants 6 AEW&C Mk-II aircraft (vs 3 Netra units); 6 aircraft allows 24/7 coverage of all sectors – one aircraft always in the air on rotation

Important Points for UPSC:

- Timeline: AEW&C Mk-II contracts signed July 2026; development will take 5-7 years; induction expected 2031-2033; India will operate both Netra (3 aircraft) and Mk-II (6 aircraft) simultaneously for 15-20 years
- TATA Advanced Systems significance: TATA Group is India's largest private defence manufacturer; their selection for Mk-II integration signals that the private sector is now trusted with India's most sensitive airborne intelligence systems
- GaN vs GaAs: Netra's GaAs radar can detect fighter jets at 375 km; Mk-II's GaN radar expected to detect at 500+ km and also detect smaller targets (drones, cruise missiles) that GaAs misses
- Drone control capability: Mk-II's BMS will have an interface to control IAF's armed drone fleet (Predator MQ-9B purchased from USA, and future DRDO MALE UAV); this is a significant capability step – AEW&C aircraft as 'motherships' for drone swarms
- Phalcon comparison: Israel's Phalcon AWACS (on IL-76) remains India's most powerful airborne sensor; Mk-II will not match Phalcon's 360-degree coverage immediately but will come close; by 2035, Mk-II may replace Phalcon when the IL-76 aircraft age out
- CAATSA dimension: Phalcon is jointly Israeli-Russian (Israeli radar, Russian IL-76 platform); CAATSA pressure + IL-76 ageing = India needs to indigenise; AEW&C Mk-II on Airbus A321 is the solution
- 6 vs 3 aircraft: Current Netra fleet of 3 aircraft cannot maintain continuous airborne coverage; India's adversaries (China has 8-10 AWACS, Pakistan has 4) have better coverage; 6 Mk-II aircraft addresses this critical gap





INDIA-PANAMA MARITIME PARTNERSHIP — LOGISTICS, DIGITAL INNOVATION, GLOBAL CONNECTIVITY

Ministry: Ministry of Ports, Shipping and Waterways

PIB Date: 22nd July 2026

Easy Explanation

Panama is a country of 4 million people but outsized global importance — it controls the Panama Canal, through which 5% of global maritime trade passes daily. The Canal connects the Pacific and Atlantic Oceans, cutting 8,000 km off the journey from Asia's east coast to North America's east coast. But Panama is not just a canal — it is also a maritime services hub with ship registration services (Panama flag = world's largest ship registry, 20%+ of global fleet), maritime law firms, ship management companies, and a growing logistics technology ecosystem. India's Ministry of Ports, Shipping and Waterways signed a bilateral Maritime Partnership Agreement with Panama this week, covering: (1) Mutual recognition of seafarers' certificates — Indian seafarers (world's 2nd largest pool of maritime officers) working on Panama-flagged ships will get faster certification recognition; (2) Digital port management cooperation — India's Logistics Data Bank (LDB) and Panama's port management systems will share data for cargo tracking; (3) Green shipping cooperation — India's experience with VOC Port's 45% emission reduction (Week 4 brief) and Kamarajar Port's 18-metre draft (Week 6 brief) shared with Panama ports; (4) Indian investment in Panama's logistics parks near the Canal Zone — Indian companies (Adani Ports, DP World India) exploring terminal management opportunities at Colón Free Zone.

Key Terms:

Term	Definition
Panama Canal	82 km canal connecting Pacific and Atlantic Oceans; handles 5% of global maritime trade; 13,000+ ships/year; opened 1914; expanded 2016 to allow Neo-Panamax ships
Panama Ship Registry	World's largest ship registry (Panama flag); 20%+ of world's commercial fleet registered under Panama; flagging = legal registration, not physical ownership
Indian seafarers	India has 2nd largest pool of maritime officers globally (after Philippines); 2.4 lakh Indian seafarers working worldwide; Indian seafarers prefer Panama-flagged ships — mutual recognition MoU directly benefits them





Colón Free Zone	World's 2nd largest free trade zone (after Hong Kong); adjacent to Panama Canal; Rs 10,000+ crore in Indian goods transshipped annually; Indian logistics investment here would capture value
Logistics Data Bank (LDB)	India's cargo tracking system for EXIM containers; real-time visibility from factory to destination port; data sharing with Panama's port system creates end-to-end tracking for India-Americas trade
Neo-Panamax ships	Ships designed to fit through Panama Canal's expanded locks (2016); up to 14,000 TEU capacity; Kamarajar Port's 18-metre draft (Week 6) is designed for Neo-Panamax – direct connection

Important Points for UPSC:

- India-Panama trade: Relatively small in bilateral terms (\$500 million); but Panama is a transit hub – \$5+ billion in Indian goods pass through Panama-flagged ships and Colón Free Zone annually for onward trade to Americas
- Seafarer certification: STCW (Standards of Training, Certification and Watchkeeping for Seafarers) is the international framework; bilateral mutual recognition means Indian certificates accepted on Panama-flagged ships without additional tests
- Green shipping link: India's emissions reduction at major ports (VOC Port 45%, Kamarajar 18m draft) connects to IMO's 2050 net-zero target; Panama as a major transit port has same sustainability pressures; sharing green port practices is a natural collaboration
- Adani Ports dimension: Adani Ports is India's largest private port operator; exploring international terminal operations; Panama's Colón Free Zone is a natural expansion target; India-Panama government MoU creates the regulatory framework for such investments
- Canal toll increase: Panama raised canal tolls 27% in 2024; created pressure on shipping lines to seek alternatives (Suez, Cape of Good Hope); India's INSTC (covered in BRICS Transport meeting, Week 6) is one such alternative – India-Panama partnership is not adversarial but complementary
- SAGARMALA connection: India's Rs 6 lakh crore Sagarmala programme for port-led development; international maritime partnerships (Panama, Seychelles Week 5, Australia Week 7) are the diplomatic infrastructure for Sagarmala's export ambitions

BHARAT 6G ALLIANCE + SPECTRUM ROADMAP – INDIA BETS ON 6G STANDARD-SETTING



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Ministry: Ministry of Communications / DoT / TRAI

PIB Date: 22nd July 2026

Easy Explanation

5G networks are still being rolled out across India. So why is 6G already in the news? Because the time between a technology being 'standardised' (technical specifications agreed globally) and being 'deployed' (actually available to consumers) is typically 8-10 years. 5G was standardised between 2017-2020 and is being deployed 2020-2027. If 6G is to be deployed globally by 2030-2035, standardisation must happen now – between 2023 and 2028. And the country or bloc that gets its technical proposals included in the international 6G standard has two advantages: its companies' patents become essential patents that must be licensed by everyone building 6G equipment (generating royalties), and its domestic industry has a head start in building 6G equipment that meets its own home-grown standards. India was largely absent from 4G and 5G standardisation – its domestic companies (Jio, BSNL) implemented technologies developed by Ericsson, Nokia, Huawei, and Qualcomm. India wants to be a 6G standard-setter, not just an implementer. The Department of Telecommunications (DoT) released India's 6G Spectrum Roadmap this week, specifying which frequency bands India will use for 6G and how they will be licensed. Simultaneously, TRAI released the Bharat 6G Alliance's report on India's prioritised 6G use cases – specifically targeting: agriculture (drone connectivity, soil sensors), healthcare (remote surgery via ultra-low latency), manufacturing (Industry 6.0 with connected robots), and smart cities.

Key Terms:

Term	Definition
6G	6th generation mobile network; target deployment 2030-2035; features: terahertz (THz) spectrum, sub-millisecond latency, terabit speeds, AI-native network architecture
Bharat 6G Alliance	India's 6G consortium: DoT, TRAI, TSDSI, IITs, CDOT, Indian industry; develops India's 6G technology proposals and submits to ITU for international standardisation
TSDSI	Telecommunications Standards Development Society, India – India's national telecom standards body; represents India in ITU (International Telecommunication Union) and 3GPP (global standards body)
ITU (International Telecommunication Union)	UN agency for telecommunications; publishes IMT-2030 framework (6G standards); India is an active member; TSDSI submits India's 6G proposals to ITU



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Spectrum Roadmap	Government's plan for which frequency bands will be used for 6G; includes Sub-6 GHz (for coverage), mmWave (for capacity), and THz (for extreme capacity in specific zones)
THz (Terahertz) spectrum	Frequency range 0.1-10 THz; proposed for 6G; extremely high capacity but very short range (<10 metres); suited for indoor hyper-density applications (factories, hospitals, stadiums)
IMT-2030	ITU's official designation for 6G; India's submissions to ITU under this framework; standardisation completion target: 2028; deployment: 2030+

Important Points for UPSC:

- India's 5G lesson: India had negligible participation in 5G standardisation; Jio, BSNL, CDOT had almost no patents; all major 5G equipment came from Ericsson (Sweden), Nokia (Finland), or Huawei (China, banned in sensitive areas) – India paid royalties to all of them
- 6G patent strategy: Bharat 6G Alliance is filing patents in ITU-relevant technical areas; if India's patents become 'essential patents' in 6G standard, every 6G device manufacturer globally must pay India licensing fees – a recurring revenue stream
- CDOT's role: Centre for Development of Telematics – India's government-owned telecom R&D centre; developed India's first 4G and 5G core network; CDOT is primary technology contributor to Bharat 6G Alliance
- BSNL 4G/5G: BSNL's 4G network (using indigenously developed CDOT technology stack) is now operational in 1 lakh+ villages; this is the testbed where Indian 6G technologies will be piloted before international standardisation
- Use case focus: India's 6G roadmap prioritises specific use cases where India has competitive advantage – agriculture (500 million farmers needing precision data), healthcare (telemedicine at scale), manufacturing (Make in India requires Industry 6.0)
- China's 6G lead: China has filed 40%+ of global 6G patent applications (IMT-2030); USA has 35%; EU, Japan, South Korea share rest; India has <2% currently – Bharat 6G Alliance is India's catch-up strategy
- Spectrum bands: India's 6G roadmap allocates Sub-6 GHz (700 MHz, 1800 MHz, 2.5 GHz, 3.5 GHz), mmWave (26 GHz, 28 GHz, 60 GHz), and THz bands (100 GHz+) – comprehensive spectrum plan needed before investment decisions by telcos





COAL AAROH — INDIA'S FIRST FRAMEWORK FOR SCIENTIFIC MINE CLOSURE AND REPURPOSING

Ministry: Ministry of Coal

PIB Date: 22nd July 2026

Easy Explanation

India has hundreds of coal mines — some active, some partially worked, and many abandoned. An abandoned coal mine is not a benign space: it can collapse suddenly (subsidence), its drainage water contaminates rivers and groundwater (acid mine drainage), methane gas from old coal seams can cause explosions, and the surrounding land is typically barren and polluted. Around the world — in Germany's Ruhr valley, in the UK's South Wales coalfields, in USA's Appalachia — countries have been wrestling for decades with the problem of old mines: how to close them safely, what to do with the land, and how to ensure that communities that depended on mining continue to have livelihoods. India, with 360 billion tonnes of coal reserves and hundreds of operating mines, will face this problem at an enormous scale as it transitions to renewables. AAROH (A Report on Holistic Mine Repurposing) — released by the Ministry of Coal this week — is India's first comprehensive framework for scientific mine closure and land repurposing. The framework covers three categories of end-use: Green repurposing (solar and wind farms on mine land — mines are typically in sunny, flat areas with existing grid connections), Blue repurposing (water reservoirs in open-cast mines — filling abandoned open-cast mines with water creates irrigation and drinking water resources), and Economic repurposing (industrial parks, data centres, logistics hubs on reclaimed mine land — mines have road/rail connectivity that can serve industrial use).

Key Terms:

Term	Definition
AAROH	A Report on Holistic Mine Repurposing — India's first mine closure and repurposing framework; Ministry of Coal; three categories: green (solar), blue (water), economic (industry)
Acid Mine Drainage (AMD)	Water contaminated with sulphuric acid and heavy metals from abandoned mines; contaminates rivers; 'orange rivers' seen near old coalfields worldwide; AAROH addresses AMD treatment
Mine subsidence	Ground collapse above underground coal workings; threatens buildings, roads, railways above old mines; key safety concern for mine closure



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Circular Economy in mining	Using mine waste (overburden, fly ash) as construction material; water from mines for industrial use; AAROH embeds circular economy principles in mine closure
Germany's Ruhr model	Rhine-Ruhr region in Germany converted old coal and steel areas into cultural venues, solar parks, data centres, universities; widely cited as model for post-coal transition; AAROH draws on this
CIL (Coal India Ltd)	World's largest coal mining company; operates 350+ mines; will be primary implementer of AAROH; responsible for 70%+ of India's coal production; has legacy of hundreds of old/abandoned mines
Mine closure cost	Safe mine closure requires flooding/sealing underground workings, soil remediation, vegetation, water treatment; India's 350+ CIL mines will require Rs 50,000-75,000 crore in closure costs over 20-30 years

Important Points for UPSC:

- India's mine closure gap: India has 350+ active CIL mines + 200+ abandoned/old mines; no systematic closure plan existed before AAROH; mines were simply left when uneconomical – AAROH is the first policy change
- Solar on mines: India has 600,000+ hectares of degraded mine land; 1 MW solar needs ~2 hectares; 600,000 ha could theoretically host 300,000 MW (300 GW) of solar – more than India's current entire renewable capacity
- Jharia coalfield case: Jharia, Jharkhand – underground coal fires burning since 1916; 15 km extent; 6 lakh people at risk; toxic gas emissions; classic case of what poor mine management creates; AAROH provides the framework to address such legacy problems
- Data centre on mines: Old open-cast mines have flat land, road/rail access, power infrastructure, water sources; data centres need all of these; Coal India exploring 3-4 mine sites for data centre development
- Just Transition dimension: AAROH includes provisions for training mine workers in skills needed for the repurposed land use – solar panel installation, reservoir management, industrial work; addresses the human dimension of coal phase-down
- Mine closure fund: AAROH recommends a Mine Closure Fund – coal companies contribute a percentage of annual revenue (estimated Rs 500-1,000 crore/year) to a fund that pays for systematic mine closure – similar to nuclear decommissioning funds





- Coal Gasification linkage: AAROH + Coal Gasification Scheme (Weeks 6-7) together = India's coal transition strategy: gasify coal reserves while they remain valuable, close mines systematically as they become uneconomical

BRICS DISASTER RISK REDUCTION MINISTERIAL — JOINT STATEMENT ADOPTED

Ministry: Ministry of Home Affairs / NDMA

PIB Date: 23rd–24th July 2026

Easy Explanation

Disasters are becoming more frequent and more severe. Climate change is increasing the intensity of cyclones, floods, droughts, and heat waves. BRICS nations – spanning the tropical cyclone belt (India, China, Brazil, South Africa), the earthquake zones (India, China, Iran), and the flood-prone river deltas (India, China, Ethiopia, Bangladesh) – are disproportionately exposed to disaster risk. The BRICS Ministerial Meeting on Disaster Risk Reduction (DRR) in New Delhi, chaired by India's Minister of State for Home Affairs Nityanand Rai, brought together DRR ministers from all BRICS nations and adopted a landmark Joint Statement. The statement has four pillars: (1) Early Warning Systems – BRICS nations will share real-time weather, seismic, and hydrological data to improve disaster early warning across the bloc; (2) Technology Sharing – India will share its NDRF (National Disaster Response Force) training methodology with BRICS partners; (3) Finance for DRR – BRICS New Development Bank (NDB) to create a dedicated DRR financing window; (4) Sendai Framework Implementation – BRICS commits to accelerate implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 (specifically Targets C, D, and E – reducing mortality, affected people, and economic losses). India's specific contribution: sharing the technology platform behind its BISWAS (BRICS Integrated Seismic Warning and Alert System) proposal with BRICS nations.

Key Terms:

Term	Definition
Sendai Framework 2015-2030	Global DRR framework adopted at UN World Conference, Sendai, Japan 2015; 7 targets, 4 priorities; India is signatory; target: reduce disaster mortality, losses, and build resilience by 2030
Sendai Targets	Target A: reduce mortality; B: reduce affected people; C: reduce economic losses; D: reduce infrastructure damage; E: increase



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	national DRR strategies; F: international cooperation; G: early warning access
NDRF	National Disaster Response Force – 15 battalions (16,000 personnel); India's specialised disaster response force; trains for flood, earthquake, cyclone, chemical disaster; shared training methodology in BRICS statement
BISWAS	BRICS Integrated Seismic Warning and Alert System – India's proposal for a BRICS-wide seismic monitoring network; shares earthquake data in real-time across BRICS nations
NDB (New Development Bank)	BRICS development bank; headquartered in Shanghai; capitalized at \$100 billion; dedicated DRR financing window proposed in BRICS DRR statement – new financial instrument
Urban flooding focus	PIB this week covered urban flooding in several cities; BRICS DRR statement specifically addresses urban flood resilience – Indian cities like Chennai, Mumbai, Bengaluru are key case studies
One Health + DRR	BRICS DRR statement connects to BRICS Health Ministers' meeting (same week); disease outbreaks after disasters are a key DRR concern; One Health approach applies to post-disaster disease surveillance

Important Points for UPSC:

- India's DRR leadership: India has reduced disaster mortality significantly – Odisha cyclone management (2013 Phailin vs 1999 Super Cyclone: 45 deaths vs 10,000) is a global model; NDRF is India's key soft power tool in DRR
- Sendai Framework 2015-2030: India is committed to 7 targets; Target A (reduce mortality) – India has shown 80%+ reduction in cyclone deaths; Target E (national DRR strategy) – India has NDMP (National Disaster Management Plan)
- BRICS DRR data: BRICS nations collectively experience: 40%+ of global earthquake damage, 50%+ of global flood losses, 30%+ of cyclone-related deaths – the club has a strong self-interest in DRR cooperation
- NDB DRR window: India is a founder member and major shareholder of NDB; a dedicated DRR financing window will benefit India's climate-resilient infrastructure investments – bridges, coastal barriers, flood-proof housing





- Urban flooding urgency: Chandigarh, where BRICS Health meeting was held, also faces urban flooding; Delhi, Mumbai, Bengaluru have had major flood events recently; BRICS statement specifically includes urban flood resilience protocols
- Technology sharing: India's satellite-based flood early warning (ISRO RISAT + IMD integration), cyclone track prediction (IMD's accuracy now comparable to US NHC), and NDRF rescue methodology are shared under this agreement
- National Disaster Management Plan (NDMP): India's NDMP is based on Sendai Framework; BRICS DRR statement is the international complement to India's domestic NDMP – multilateral cooperation reinforcing national planning

BHARAT TAXI EXPANDS TO MAHARASHTRA — COOPERATIVE MODEL SCALING

Ministry: Ministry of Cooperation

PIB Date: 23rd July 2026

Easy Explanation

We covered the launch of Bharat Taxi in Gujarat (Ahmedabad, Surat, Rajkot) in Week 5. This week, Maharashtra CM Devendra Fadnavis launched Bharat Taxi in Maharashtra – marking the service's first expansion beyond Gujarat and the first time it operates in a mega-city (Mumbai). Maharashtra is a significantly more complex market than Gujarat: Mumbai alone has 3 million Ola-Uber rides per day, a deeply entrenched incumbent base, complex traffic patterns, and highly price-conscious riders who regularly switch between platforms. Launching Bharat Taxi in Mumbai tests whether the cooperative model can compete not just in smaller cities (where incumbents have less penetration) but in India's most competitive urban mobility market. The Maharashtra launch also comes with a structural expansion of the Bharat Taxi network: the Ministry of Cooperation this week revealed that Bharat Taxi Multi-Purpose Cooperative Societies (MPCS) have been registered in Rajasthan – meaning Bharat Taxi is now a national programme, not just a Gujarat experiment. The MPCS structure is significant: it is not just a taxi cooperative, it is a Multi-Purpose Cooperative Society that can engage in other income activities (delivery services, logistics, emergency transport) in addition to taxi operations – making the cooperative economically more resilient than a single-service taxi company.

Key Terms:

Term	Definition
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Bharat Taxi Maharashtra	Launched by CM Devendra Fadnavis in Maharashtra; first expansion beyond Gujarat; includes Mumbai – India's most competitive urban mobility market
Multi-Purpose Cooperative Society (MPCS)	Cooperative that can engage in multiple economic activities; Bharat Taxi MPCS can do taxi, delivery, logistics, emergency transport – diversified income model vs single-service taxi
Rajasthan Bharat Taxi MPCS	Ministry of Cooperation revealed Bharat Taxi MPCS registered in Rajasthan this week – confirms national expansion; not just Gujarat, not just Maharashtra
Ola-Uber market size	India's ride-hailing market: Rs 1.5 lakh crore annually; Ola (40%) and Uber (35%) together control 75%; Rapido, InDrive, Namma Yatri are challengers; Bharat Taxi enters this competitive landscape
Mumbai complexity	Mumbai: 3 million rides/day; 2.5 lakh+ Ola-Uber drivers already; 4 km average trip length; highly price-sensitive market; existing kaali-peeli (black-yellow) taxis also competing – most challenging urban mobility market
National Cooperation Policy 2025	Policy framework under Ministry of Cooperation; Bharat Taxi is one of its flagship programmes; Ministry reviewing implementation this week, confirming progress

Important Points for UPSC:

- Maharashtra launch significance: Bharat Taxi in Mumbai = the cooperative model competing directly with Silicon Valley-backed companies (Ola funded by SoftBank, Uber by global VCs) in their strongest market – a genuine test of cooperative economics at scale
- MPCS structure advantage: A Multi-Purpose Cooperative Society can share resources across activities; a taxi driver's slow afternoon can be used for last-mile delivery (Zomato, Blinkit, Swiggy orders) – diversified income reduces driver income volatility
- Political economy: Maharashtra and Gujarat are both BJP-ruled states; Bharat Taxi's rapid expansion in both is also a political signal from the Amit Shah-led Ministry of Cooperation – cooperative model as BJP's economic alternative to both PSU socialism and corporate capitalism
- LokOS + Bharat Taxi + Amul Bengal: Three cooperative economy announcements from Ministry of Cooperation in Weeks 6-8: LokOS (rural commerce cooperatives), Bharat Taxi (urban transport cooperatives), Amul Bengal (dairy cooperatives) – a systematic cooperative economy architecture





- Technology challenge: Ola and Uber have 10+ years of routing algorithm, driver behaviour, and demand prediction data; Bharat Taxi's app is new and lacks this data advantage; government must ensure platform quality matches the cooperative economics benefit
- Namma Yatri parallel: Namma Yatri is a zero-commission app (Open Network for Digital Commerce-based) for autos in Bengaluru; it was a non-cooperative but commission-free model that captured 40% of Bengaluru auto market in 2 years; Bharat Taxi's cooperative model is the next step

SVAMITVA + DRONE LAND SURVEYS – DIGITAL PROPERTY RIGHTS FOR RURAL INDIA

Ministry: Ministry of Panchayati Raj / Ministry of Rural Development

PIB Date: 21st–22nd July 2026

Easy Explanation

Imagine owning a house your family has lived in for 100 years but having no paper proof of ownership. This is the reality for millions of rural Indians. Their homes are in village habitations (abadi areas) that were never surveyed properly – state land records only covered agricultural land (khet), not the residential land (gaon) where homes were built. Without a property document, you cannot use your house as collateral for a bank loan, you cannot sell it legally, and you may lose it if someone with political connections claims your land. The SVAMITVA (Survey of Villages and Mapping with Improvised Technology in Village Areas) scheme, launched in 2020, uses drones to map every house in every village in India and give each homeowner a legally valid Property Card (Adhikar Patra). This week, Parliament questions revealed the status: SVAMITVA has now covered 3.17 lakh villages; 2.37 crore Property Cards distributed; all states (except one or two with legal disputes) are participating. The Department of Land Resources also unveiled a pilot project 'NAKSHA' in Goa – integrating SVAMITVA drone maps with the Revenue Department's digital land records system so that property transactions (sale, inheritance, mortgage) can happen entirely digitally without manual verification. The RBI Innovation Hub is collaborating to link these digital property records to credit – if your Property Card is on a digital ledger, a bank can instantly verify and offer a loan against it.

Key Terms:

Term	Definition
SVAMITVA	Survey of Villages and Mapping with Improvised Technology in Village Areas; drone survey of residential (abadi) areas in villages; gives homeowners legally valid Property Cards





Abadi area	Residential portion of a village; historically not surveyed by Revenue Departments (only agricultural land was); SVAMITVA is the first systematic survey of abadi areas in India
Property Card (Adhikar Patra)	Legal document of property rights in rural areas issued under SVAMITVA; recognised as title document for collateral; 2.37 crore distributed so far
NAKSHA pilot (Goa)	Integration of SVAMITVA drone maps with Revenue Department digital records; property transactions (sale, mortgage, inheritance) possible digitally without manual verification
RBI Innovation Hub collaboration	RBI's fintech sandbox collaborating with SVAMITVA data to enable property-backed credit; digital Property Cards linked to credit eligibility assessment
Dead capital	Property that is informally owned but cannot be used as economic collateral (Hernando de Soto's theory); SVAMITVA converts dead capital into live economic assets by giving formal title
DILRMP	Digital India Land Records Modernisation Programme – Ministry of Land Resources; digitisation of land records, mutation, survey; SVAMITVA and NAKSHA are components of DILRMP

Important Points for UPSC:

- SVAMITVA status: 3.17 lakh of ~6.5 lakh villages covered (49%); 2.37 crore Property Cards distributed; target: all villages by 2026-27; Karnataka, Maharashtra, UP are largest states for completion
- Economic impact of property formalisation: Hernando de Soto's 'The Mystery of Capital' (2000) argued that poor people in developing countries have billions in informal assets but cannot use them because they lack formal title; SVAMITVA is India's most direct implementation of de Soto's thesis
- Credit access: Before SVAMITVA, a rural homeowner could not get a bank loan against their house; after Property Card, they can; RBI estimates Rs 2-3 lakh crore in new credit potential once all villages are covered
- Panchayati Raj data: Parliament questions also revealed E-GramSwaraj portal (panchayat digital governance) is now active in 85%+ of panchayats; SVAMITVA maps are being integrated with E-GramSwaraj for property tax assessment





- Drone technology: SVAMITVA uses DGCA-approved drones for aerial photography; survey-grade GPS for ground control points; LiDAR (Light Detection and Ranging) in complex terrain; produces maps accurate to 5 cm
 - Legal challenges: Some villages have disputes (encroachments, family disputes) that drones reveal but cannot resolve; SVAMITVA reveals disputes rather than resolving them; additional legal aid (DISHA 2.0, Week 4 brief) is needed alongside
 - NAKSHA-RBI-SVAMITVA chain: Drone survey (SVAMITVA) → Digital land record (NAKSHA) → Credit assessment (RBI Innovation Hub) → Bank loan against property = a complete DPI (Digital Public Infrastructure) for rural property economics
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PRACTICE QUESTIONS

10 PRELIMS QUESTIONS — UPSC PRELIMS STYLE

Q1. Vikram-1, which successfully reached orbit on 18th July 2026, is significant because:

1. It is India's first private commercial rocket to reach orbit.
2. It was developed by Skyroot Aerospace, a startup founded by former ISRO scientists.
3. It is operated by ISRO under its new commercial division IN-SPACe.
4. It deployed three satellites into a Sun-Synchronous Orbit (SSO) at 500 km altitude.

How many of the above are correct?

- (a) Only two
- (b) Only three
- (c) All four
- (d) Only one

Q2. The Kusha LRSAM, which completed its maiden flight test this week, is best described as:

- (a) India's first indigenously developed Long-Range Surface-to-Air Missile with a target range of ~350 km
- (b) A long-range anti-ship cruise missile developed jointly by DRDO and Israel Aerospace Industries
- (c) An upgraded version of the Barak-8 missile extended to 350 km range through DRDO's modifications
- (d) A ballistic missile designed for nuclear-capable delivery at intercontinental range

Q3. With reference to Denvax, India's first approved dengue vaccine, consider the following:

1. It is a live-attenuated tetravalent vaccine providing protection against all four dengue serotypes.
2. It was developed by Zydus Lifesciences and approved by CDSCO.
3. It is recommended for use in all age groups above 2 years regardless of prior dengue exposure.
4. Antibody-Dependent Enhancement (ADE) is the biological phenomenon that makes dengue vaccine development challenging.

Which of the above are correct?

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





Q4. The BHAVYA Rasayan scheme, approved by Cabinet on 24th July 2026, is designed to:

- (a) Provide production-linked incentives to pharmaceutical companies manufacturing APIs in India
- (b) Create dedicated Chemical Parks with shared infrastructure including ETPs, solvent recovery, and safety systems
- (c) Subsidise the procurement of chemical inputs for fertiliser manufacturing under NIPU-2026
- (d) Regulate the import of specialty chemicals from China through a new licensing regime

Q5. Consider the following about India's WTO Fisheries Subsidies Agreement acceptance:

- 1. India deposited its instrument of acceptance on 20th July 2026.
- 2. The agreement prohibits subsidies for Illegal, Unreported and Unregulated (IUU) fishing.
- 3. India's acceptance note specifically protects subsidies to artisanal fishermen using boats under 24 metres.
- 4. The agreement comes into force when all 164 WTO members have accepted it.

Which of the above are correct?

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

Q6. India's broad gauge railway electrification reaching 99.6% makes India second only to Switzerland in the world. Which of the following best explains the significance of this achievement?

- 1. Electric locomotives are 3x more energy-efficient than diesel and significantly cheaper to operate per km.
- 2. India added approximately 46,000 km of electrification between 2014 and 2026.
- 3. Indian Railways has committed to net zero carbon emissions by 2030, for which electrification is the primary enabler.
- 4. The remaining 0.4% non-electrified track consists of urban metro sections being upgraded to high-speed rail.

How many are correct?

- (a) Only two
- (b) Only three
- (c) All four
- (d) Only one





Q7. The SVAMITVA scheme, which has covered 3.17 lakh villages so far, specifically surveys:

- (a) Agricultural land (khet) holdings of farmers using satellite imagery for crop insurance purposes
- (b) Residential (abadi) areas of villages using drones to give homeowners legally valid Property Cards
- (c) Forest land encroachments by tribal communities for the purpose of issuing Forest Rights Act titles
- (d) Urban slum areas under PM Awas Yojana to determine eligibility for housing subsidies

Q8. Consider the following about the BRICS Disaster Risk Reduction (DRR) Ministerial Meeting:

1. The meeting was chaired by India's Minister of State for Home Affairs.
2. BRICS nations agreed to create a dedicated DRR financing window in the New Development Bank (NDB).
3. India proposed BISWAS – BRICS Integrated Seismic Warning and Alert System.
4. The Sendai Framework for DRR 2015-2030 provides the global framework for BRICS DRR commitments.

How many are correct?

- (a) Only three
- (b) All four
- (c) Only two
- (d) Only one

Q9. The AAROH framework released by the Ministry of Coal identifies three categories for mine repurposing. These are:

- (a) Carbon capture, methane extraction, and groundwater harvesting
- (b) Green (solar/wind), Blue (water reservoirs), and Economic (industrial parks/data centres)
- (c) Coal gasification, coal-to-liquids, and coal-to-chemicals conversion
- (d) Heritage tourism, ecological restoration, and low-carbon agriculture

Q10. The AEW&C Mk-II programme contracts signed this week differ from the Netra (AEW&C Mk-I) system in which of the following ways?

1. Mk-II uses an Airbus A321 platform instead of Netra's Embraer ERJ-145.
2. Mk-II uses Gallium Nitride (GaN) AESA radar instead of Gallium Arsenide (GaAs) in Netra.
3. Mk-II contracts were awarded to TATA Advanced Systems and BEL – private-public sector partners.
4. Mk-II will have the capability to control India's armed drone fleet from the air.

How many are correct?

- (a) Only two





- (b) Only three
- (c) All four
- (d) Only one

2 MAINS QUESTIONS WITH MODEL ANSWERS

MAINS QUESTION 1 — 150 WORDS:

Vikram-1's successful orbital launch and the Kusha LRSAM maiden test both happened in the same week, and both represent India crossing a threshold in a domain where it previously depended on others. What is the common strategic principle behind these two developments, and how does it connect to India's broader Atmanirbhar Bharat doctrine in defence and space?

MODEL ANSWER — 150 WORDS:

The common principle is technological sovereignty – the ability to produce critical strategic capabilities domestically, free from foreign supply chain dependence or the risk of technology denial. Vikram-1 ends India's dependence on ISRO for all orbital launches and on foreign launchers for commercial payloads. India spent crores on foreign launches (Ariane-5, PSLV at premium commercial rates) before IN-SPACe enabled private competition. Vikram-1's success means India now has a market-competitive indigenous option – and 400+ space startups can build satellites knowing affordable Indian launch exists. Kusha addresses a different but equally important dependence: India's S-400 air defence system is Russian. CAATSA sanctions hang over the relationship. More critically, in a conflict, software updates, spare parts, and technical support from Russia cannot be guaranteed. Kusha at 350 km range provides an indigenous path out of this vulnerability – not immediately, but credibly by 2031-33. Atmanirbhar Bharat's real test is not PLI schemes or procurement preference policies. It is whether India can independently develop systems like Kusha and Vikram-1 that adversaries or technology-denial regimes cannot switch off. This week demonstrates that India is systematically crossing these thresholds.

MAINS QUESTION 2 — 250 WORDS:



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India's acceptance of the WTO Fisheries Subsidies Agreement, the BRICS DRR Joint Statement, and the AAROH mine closure framework all appeared in the same week. Examine how these three developments collectively reflect India's evolving approach to environmental governance – moving from resistance to leadership – and identify the structural tensions that remain.

MODEL ANSWER – 250 WORDS:

India's traditional stance in global environmental governance has been defensive – prioritising development rights over environmental obligations, citing historical emissions responsibility of developed nations, and resisting binding commitments that constrain growth. This week's three developments together signal a more confident, leadership-oriented posture. The WTO Fisheries Subsidies Agreement acceptance is the clearest sign of this shift. India had been among the most reluctant nations – correctly arguing that its subsidies benefit small artisanal fishermen, not industrial fleets that are the primary cause of overfishing. Accepting the agreement (with a protective note for sub-24 metre boats) shows India is willing to accept multilateral environmental discipline when it can carve out protection for its most vulnerable populations. This is a mature diplomatic move: India gains credibility as a rules-abiding multilateral partner while protecting its 2.8 crore fishermen. The BRICS DRR Joint Statement reflects India's shift from 'victim of climate change' to 'provider of climate resilience solutions.' India's NDRF training methodology, its cyclone early warning system (which reduced cyclone deaths by 80%+ since 1999), and its proposed BISWAS seismic alert system are being shared with BRICS partners. This is India using its disaster management expertise as soft power – a very different posture from defensive negotiations about emissions reductions. The AAROH mine closure framework is the most domestically significant. India has 360 billion tonnes of coal reserves and will not stop mining coal rapidly. But AAROH shows India is planning for the post-coal future – solar farms on mine land, water reservoirs in open-cast mines, just transition programmes for mine workers. This proactive mine repurposing framework is more sophisticated than anything the USA or Australia (both large coal producers) has produced. The structural tension that remains: India still opened 20 new coal block auctions in the same week AAROH was released. India's coal production is still growing (1.1 billion tonnes target for 2026-27). The environmental governance leadership is real but coexists with a continued fossil fuel expansion that developing countries see as necessary for energy security. India's honest position is: 'we are building the governance framework for a responsible transition, but the transition itself will take 20-30 years.' Whether the international community accepts this timeline is the central tension in India's climate diplomacy.





PRELIMS ANSWERS & EXPLANATIONS

Q1. Answer: (b) Only three

Explanation: Statement 3 is WRONG – Vikram-1 is NOT operated by ISRO. It is operated by Skyroot Aerospace, a private company. IN-SPACe is the regulator that authorised Skyroot to conduct the launch from ISRO's Sriharikota facility – but IN-SPACe is a regulator, not the operator. ISRO provided the launch pad; Skyroot built and operated the rocket. Statements 1 (first private commercial orbital rocket), 2 (Skyroot founded by ex-ISRO scientists), and 4 (3 satellites into 500 km SSO) are correct.

Q2. Answer: (a)

Explanation: Kusha is India's first indigenously developed Long-Range Surface-to-Air Missile (LRSAM) with a target range of approximately 350 km, developed by DRDO's DRDL Hyderabad. It is NOT a joint India-Israel missile (Barak-8 ER is joint but has range of 70-100 km, not 350 km). It is NOT an upgrade of Barak-8. It is NOT a ballistic missile – a SAM intercepts aerial threats; a ballistic missile carries a warhead to ground targets.

Q3. Answer: (a) 1, 2 and 4 only

Explanation: Statement 3 is WRONG – Denvax is NOT recommended for all age groups regardless of prior dengue exposure. It is recommended only for those who have previously been infected with dengue (seropositive individuals). This restriction directly addresses the Antibody-Dependent Enhancement (ADE) risk – the same lesson learned from Dengvaxia's Philippines tragedy, where vaccination of dengue-naïve individuals led to severe disease on subsequent infection. Statements 1 (live-attenuated tetravalent), 2 (Zydus/CDSCO), and 4 (ADE challenge) are correct.

Q4. Answer: (b)

Explanation: BHAVYA Rasayan is specifically for creating Chemical Parks – dedicated industrial zones with shared specialised infrastructure including Effluent Treatment Plants (ETPs), common solvent recovery systems, explosion-proof utilities, and safety/emergency systems. NOT API PLI (that is a separate scheme from 2020). NOT fertiliser subsidy (that is NIPU-2026, different scheme). NOT import regulation (that is DGFT's domain, not a Cabinet chemical scheme).

Q5. Answer: (a) 1, 2 and 3 only





Explanation: Statement 4 is WRONG – the agreement comes into force when TWO-THIRDS of WTO members (approximately 110+) have accepted it, not when ALL 164 members accept. This is a standard WTO agreement entry-into-force mechanism. Statements 1 (July 20 deposit), 2 (IUU fishing subsidies prohibited), and 3 (artisanal boats under 24 metres protected) are correct.

Q6. Answer: (b) Only three

Explanation: Statement 4 is WRONG – the remaining 0.4% non-electrified track is NOT urban metro sections. It is in extremely remote, difficult-terrain sections in Northeast India, J&K, and tribal areas where conventional electrification is technically challenging. Urban metro sections are separately electrified (25 kV or 750V DC third rail) and are not counted in the IR broad gauge electrification statistics. Statements 1, 2, and 3 are all correct.

Q7. Answer: (b)

Explanation: SVAMITVA specifically surveys the ABADI (residential) areas of villages using drones, giving homeowners legally valid Property Cards. Not agricultural land (that is already covered by older land records like khasra/khatauni). Not forest land (that is Forest Rights Act). Not urban slums (that is different – PM Awas Yojana Urban for urban, PMAY-G for rural housing construction). The abadi area distinction is critical for UPSC – state land records historically covered only agricultural land, leaving village residential areas unmapped.

Q8. Answer: (b) All four

Explanation: All four statements are correct. Meeting chaired by MoS Home Affairs Nityanand Rai; NDB dedicated DRR financing window proposed in the Joint Statement; India proposed BISWAS (BRICS Integrated Seismic Warning and Alert System); Sendai Framework 2015-2030 is the global DRR framework underpinning BRICS DRR commitments. Rare all-correct answer – each fact must be independently memorised.

Q9. Answer: (b)

Explanation: AAROH's three mine repurposing categories are: Green (solar and wind farms on mine land), Blue (water reservoirs in abandoned open-cast mines), and Economic (industrial parks, data centres, logistics hubs on reclaimed mine land). None of the other options reflect AAROH's framework – carbon capture and methane extraction (option a) are separate technologies; coal-to-chemicals (option c) is BCGCL/Gasification Scheme; heritage tourism (option d) is one possible minor use but not AAROH's framework.

Q10. Answer: (c) All four



Explanation: All four statements correctly describe AEW&C Mk-II vs Netra differences: Airbus A321 platform (vs ERJ-145); GaN AESA radar (vs GaAs – 3-5x more power); contracts with TATA Advanced Systems and BEL (private-public partnership); drone fleet control capability (new feature not in Netra). All four are confirmed in the PIB release. Another all-correct answer – testament to how much specific technical detail UPSC expects on defence indigenisation topics.





WEEK 03 COMPLETE

WEEK 04 BEGINS

25–31 JULY 2026

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SARNATH — INSCRIBED ON UNESCO WORLD HERITAGE LIST

Ministry: Ministry of Culture / Archaeological Survey of India

PIB Date: 25th July 2026

Easy Explanation

About 10 km from Varanasi in Uttar Pradesh stands one of the most important sites in the history of human civilisation. This is Sarnath — the place where Siddhartha Gautama, after attaining enlightenment under the Bodhi tree at Bodh Gaya, came and delivered his very first sermon to five disciples. That first sermon — known as the Dhammacakkappavattana Sutta or the Turning of the Wheel of Dharma — is the foundational event of Buddhism. From this moment, Buddhism grew into one of the world's great religions, eventually spreading across Asia and touching the lives of billions of people. Sarnath contains the Dhamek Stupa (built in 500 CE, marking the exact spot of the sermon), the ruins of the Dharmarajika Stupa, the Ashoka Pillar (the original, whose Lion Capital is India's National Emblem), the Mulagandha Kuti Vihara, and an exceptionally rich museum housing the finest collection of Mauryan art in the world. PM Modi expressed delight as India's 43rd UNESCO World Heritage Site inscription was confirmed — Sarnath joins India's prestigious list that includes the Taj Mahal, Ajanta-Ellora caves, Hampi, and others. The inscription is under the Cultural category of UNESCO's World Heritage Convention (1972), recognising Sarnath's Outstanding Universal Value as a site of exceptional importance to world civilisation.

Key Terms:

Term	Definition
UNESCO World Heritage Convention 1972	International treaty for protecting cultural and natural heritage; India ratified 1977; sites inscribed must meet at least one of 10 criteria (C1-C6 cultural, N7-N10 natural)
Outstanding Universal Value (OUV)	UNESCO's core concept — a site must have cultural, scientific, or natural significance that transcends national boundaries; 10 criteria define OUV
Dhamek Stupa	Cylindrical stupa at Sarnath; 500 CE; marks the exact location of the Buddha's First Sermon; 43.6 m tall; 28 m diameter at base; one of Buddhism's most sacred structures
Dhammacakkappavattana Sutta	Setting in Motion the Wheel of Dharma — the Buddha's First Sermon at Sarnath; delivered to the Panchavaggi (five



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	disciples); established the Four Noble Truths and Eightfold Path
Lion Capital of Ashoka	The original capital of Ashoka's pillar at Sarnath; four lions back-to-back; adopted as India's National Emblem in 1950; the Ashoka Chakra from its base is on India's national flag
India's World Heritage Sites	India has 43 UNESCO World Heritage Sites – 34 cultural, 7 natural, 2 mixed; 4th highest in the world after Italy (58), China (57), Germany (52)
Sarnath Museum	Archaeological Museum at Sarnath; established 1910; houses the Lion Capital (original), Gupta-era Buddha statues, Ashoka Pillar fragments; one of India's most important archaeological museums

Important Points for UPSC:

- Sarnath is one of the four most sacred Buddhist pilgrimage sites: Lumbini (birth), Bodh Gaya (enlightenment), Sarnath (first sermon), Kushinagar (death/parinirvana) – India has three of the four
- UNESCO inscription criteria for Sarnath: Cultural criteria (i) representing a masterpiece of human creative genius, (ii) important interchange of human values across time, (vi) directly associated with events of outstanding universal significance – the Buddha's First Sermon
- Dhamek Stupa construction: Mauryan period (original), rebuilt Gupta period (500 CE); cylindrical shape unusual – most stupas are hemispherical; carved with floral designs and human figures in late Gupta style
- Ashoka Pillar at Sarnath: Emperor Ashoka (304-232 BCE) erected pillars across his empire to spread Dhamma; Sarnath pillar is the finest; capital now in Sarnath Museum; shaft is still visible at the site
- National Emblem connection: India's National Emblem is the Lion Capital from Sarnath; adopted January 26, 1950; the Devanagari inscription Satyameva Jayate (Truth Alone Triumphs) is from Mundaka Upanishad, not Buddhist – added to the Emblem
- India's 43rd World Heritage Site: Previous sites include Taj Mahal (1983), Ajanta Caves (1983), Ellora Caves (1983), Qutb Minar (1993), Humayun's Tomb (1993), Sun Temple Konark (1984), Great Himalayan National Park (2014), Dholavira (2021), Hoysala temples (2023)
- Buddhist circuit tourism: Sarnath's inscription boosts India's Buddhist Circuit tourism (Lumbini-Bodh Gaya-Sarnath-Kushinagar corridor); targeted at international Buddhist pilgrims from Thailand, Sri Lanka, Japan, South Korea, Myanmar, Vietnam





- ASI jurisdiction: Sarnath is a Centrally Protected Monument under ASI; UNESCO inscription creates additional international scrutiny obligations – any development within buffer zone requires UNESCO notification

SAMUDRA MANTHAN — Rs 84,084 CRORE NATIONAL OFFSHORE EXPLORATION SCHEME

Ministry: Ministry of Petroleum & Natural Gas

PIB Date: 31st July 2026

Easy Explanation

The name is perfectly chosen. Samudra Manthan – the Churning of the Ocean – is the ancient Hindu myth where gods and demons churned the cosmic ocean to extract amrita (nectar of immortality) and other treasures from the deep. India's Rs 84,084 crore National Offshore Exploration Scheme, approved by Cabinet on July 31, is quite literally a churning of India's deep seas for the treasures within: oil, natural gas, and possibly methane hydrates buried beneath India's Exclusive Economic Zone (EEZ). India has 2.02 million sq km of EEZ – one of the world's largest – but has explored only 10% of its offshore sedimentary basins adequately. The vast majority of India's offshore exploration has been concentrated in the Mumbai High (which discovered oil in 1974 and has been producing since 1976) and the Krishna-Godavari basin (KG-D6, the Reliance field that found massive gas reserves in 2002). But India's western deep-water basins (Kutch, Saurashtra), the Andaman-Nicobar offshore, the Kerala-Konkan basin, and parts of the Bay of Bengal remain underexplored. Samudra Manthan changes this by providing Rs 84,084 crore over 10 years for seismic surveys, exploratory drilling, and data acquisition across 26 under-explored offshore basins; a new regulatory framework enabling faster approvals; and special incentives for deep-water and ultra-deep-water exploration (3,000+ metre depths) where risks are highest but potential rewards are greatest.

Key Terms:

Term	Definition
Samudra Manthan	National Offshore Exploration Scheme; Rs 84,084 crore; Cabinet approved July 31; 10-year programme for offshore oil/gas exploration in India's 26 under-explored basins
EEZ (Exclusive Economic Zone)	Area extending 200 nautical miles from India's coastline; India has sovereign rights to explore and exploit natural resources within its EEZ; 2.02 million sq km



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Mumbai High	India's largest offshore oilfield; discovered 1974; western coast of Maharashtra; operated by ONGC; produces ~300,000 barrels/day; production declining due to age
KG-D6 Basin	Krishna-Godavari Deep-water Block D6; operated by Reliance Industries; Bay of Bengal; discovered world's largest gas find in 2002; production has fluctuated significantly
Sedimentary Basin	Geological formation where organic material was deposited, buried, and converted to oil/gas over millions of years; India has 26 identified sedimentary basins; only 7 adequately explored
OALP (Open Acreage Licensing Policy)	India's current policy where companies can bid for any offshore block rather than waiting for government-announced rounds; Samudra Manthan accelerates block licensing under OALP
Methane Hydrates	Ice-like crystalline structures trapping methane gas in deep-sea sediments; India's EEZ is estimated to hold 1,894 trillion cubic metres – several times global conventional gas reserves; not yet commercially viable

Important Points for UPSC:

- India's import dependence: India imports 87% of crude oil and 50% of natural gas; annual import bill Rs 10-12 lakh crore; every 10% reduction in imports = Rs 1-1.2 lakh crore saved – Samudra Manthan's strategic rationale
- 26 basins: India has 26 sedimentary basins – 7 adequately explored (Mumbai High, KG basin, Assam shelf etc.); 7 partially explored; 12 unexplored – Samudra Manthan targets the 19 inadequately explored ones
- Deep-water potential: India's deep-water blocks hold estimated 20-30 billion barrels equivalent of oil and gas; exploring these requires specialised rigs (semi-submersibles, drillships) that cost \$300,000-500,000/day – government sharing this risk through Samudra Manthan
- ONGC + private sector: ONGC will lead exploration in government-allocated blocks; private companies (Reliance, ONGC Videsh, foreign companies) invited for joint ventures; Samudra Manthan provides the seismic data that de-risks private investment
- Methane hydrates: India is among the world's leaders in methane hydrate research (ONGC's NGHP programme); if commercialised by 2040-50, methane hydrates in India's EEZ could make India a net energy exporter – Samudra Manthan funds continued research





- Rs 84,084 crore structure: Approximately Rs 8,400 crore/year over 10 years; split between seismic surveys (40%), exploratory drilling (45%), data processing and technology (15%); ONGC, Oil India, and DGH are implementing agencies
- Comparison: Brazil's pre-salt offshore exploration (discovered 2006, produces 3 million barrels/day now) transformed Brazil from oil importer to exporter in 20 years — Samudra Manthan is India's equivalent attempt

PM SURYA SAROVAR YOJANA — FLOATING SOLAR + STORAGE ON RESERVOIRS

Ministry: Ministry of New and Renewable Energy

PIB Date: 31st July 2026

Easy Explanation

India has 5,264 large dams and tens of thousands of smaller reservoirs — the legacy of 75 years of irrigation and water management investment. These reservoirs serve their primary purpose of storing water, but their vast water surfaces are largely idle from an energy perspective. Floating Solar Photovoltaic (FPV) technology places solar panels on pontoons floating on the water surface, generating electricity without consuming any additional land. The PM Surya Sarovar Yojana (PM-SSY), approved by Cabinet on July 31 with Rs 5,070 crore outlay, is India's first dedicated national programme for floating solar combined with energy storage systems on reservoirs owned by the central government. This is distinct from other solar programmes because it addresses two problems simultaneously: India's growing need for solar capacity (500 GW target by 2030) and India's critical need for grid-level storage (solar power without storage is available only 8-10 hours/day; paired with batteries or pumped hydro, it becomes dispatchable 24/7). The scheme specifically targets reservoirs owned by Central agencies (NHPC, NTPC, NLC India, SJVNL, THDC) where the government does not have to negotiate with state water departments for permissions. Each project will have solar panels floating on the reservoir surface, battery energy storage systems (BESS) on the reservoir banks, and grid connectivity to feed power into the national grid during peak demand hours.

Key Terms:

Term	Definition
PM Surya Sarovar Yojana (PM-SSY)	Rs 5,070 crore; Cabinet approved July 31; floating solar + battery storage on central government reservoirs; first national floating solar scheme



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Floating Solar PV (FPV)	Solar panels mounted on pontoons floating on water surfaces; advantages: no land use, water evaporation reduction (10-15%), higher panel efficiency (water cooling), no shadow obstructions
BESS (Battery Energy Storage System)	Large-scale battery banks that store solar electricity during daytime and discharge during peak evening demand; lithium-ion or lithium iron phosphate technology; enables 24/7 dispatchable solar power
Water evaporation saving	FPV panels shade water surface, reducing evaporation by 10-15%; significant water saving in water-scarce India; dual benefit of power generation + water conservation
Dispatchable power	Power that can be switched on/off on demand; solar without storage is non-dispatchable (available only when sun shines); solar + BESS = dispatchable renewable energy – as reliable as a coal plant
NHPC / NTPC / NLC / SJVN	Central PSUs operating hydropower, thermal, and lignite plants; they also own large reservoirs; PM-SSY uses these existing reservoirs for floating solar deployment
Kerala's Banasura Sagar	India's first floating solar plant (500 kW, 2017); PM-SSY scales this to GW level across all central reservoirs

Important Points for UPSC:

- India's reservoir surface area: 5,264 large dams have ~3.5 million hectares of water surface; even using 10% (350,000 hectares) for floating solar at 1 MW/hectare = 350 GW potential – more than India's entire current solar capacity
- Water conservation: India loses 20-40% of reservoir water to evaporation annually in hot states; floating solar panels shade the surface, reducing evaporation; Rajasthan and Gujarat reservoirs would benefit most
- PM-SSY targets: Rs 5,070 crore will develop floating solar + BESS at 20-25 central reservoirs; estimated 2-3 GW floating solar capacity; 1-2 GWh battery storage; pilot for much larger national rollout
- Storage dimension: Without storage, solar power cannot serve evening peak demand (6-10 PM) when households and industry need power most; PM-SSY's BESS ensures solar electricity is available when it is needed, not just when it is generated





- Grid stability: Large BESS systems can provide ancillary services (frequency regulation, voltage support) to the grid – making the grid more stable as renewable penetration increases past 45%
- Cost trajectory: Floating solar costs have fallen 60% in 5 years (from Rs 8 crore/MW to Rs 3.5 crore/MW); BESS costs falling 20%/year; PM-SSY is designed to be cost-competitive with coal power within its project lifetime

PUBLIC EXAMINATIONS (PREVENTION OF UNFAIR MEANS) AMENDMENT BILL 2026

Ministry: Ministry of Personnel, Public Grievances & Pensions

PIB Date: 29th–30th July 2026

Easy Explanation

India's examination system has been plagued by a recurring crisis: paper leaks. In 2024, the NEET-UG (medical entrance exam) paper leaked before the exam, affecting 24 lakh students who had spent years preparing. The UGC-NET paper leaked the same year, causing the exam to be cancelled. The Railway Recruitment Board exams have had repeated malpractice allegations. These are not minor inconveniences – they are crimes that steal opportunity from millions of students from ordinary backgrounds who study honestly for years, while candidates who can afford to buy leaked papers get an unfair advantage. The Public Examinations (Prevention of Unfair Means) Act, 2024 was India's first dedicated law against examination malpractice – it criminalised paper leaks with punishment of 3-10 years' imprisonment and fines of Rs 1-10 crore for organised cheating networks. The Public Examinations (Prevention of Unfair Means) Amendment Bill, 2026 – passed by Lok Sabha on July 29 and Rajya Sabha on July 30 – significantly strengthens this law in four ways: (1) it brings all state government competitive examinations under its ambit; (2) it makes impersonation a specific offence with enhanced punishment; (3) it creates an obligation for examination authorities to report breaches within 24 hours; and (4) it establishes a National Examination Integrity Board (NEIB) as a permanent oversight body.

Key Terms:

Term	Definition
Public Examinations Act 2024	Original law criminalising paper leaks; 3-10 years imprisonment; Rs 1-10 crore fine; covered UPSC, SSC, NTA exams; 2026 Amendment extends and strengthens this
National Testing Agency (NTA)	Conducts NEET-UG, JEE, UGC-NET, CUET; Rs 1,000+ crore annual budget; 30 million+ test-takers/year; NEET-UG 2024



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	paper leak triggered original 2024 Act and now 2026 Amendment
NEIB (National Examination Integrity Board)	New permanent body created by 2026 Amendment; oversees security of all public examinations; standardises digital surveillance, biometric authentication, and OMR security protocols
Impersonation offence	Appearing for exam in someone else's name; organised impersonation rings exist; 2026 Amendment makes this a specific, separately punishable offence
State examinations included	2024 Act covered only central examinations; 2026 Amendment extends to all state government competitive examinations – state PSC, state recruitment boards are now covered
24-hour reporting obligation	Examination authorities must report any breach to NEIB within 24 hours; delays in reporting were how NEET-UG 2024 leak became a crisis
NEET-UG 2024 impact	24 lakh students affected; 1,563 students got perfect 720/720 scores (statistically anomalous); CBI investigation; paper traced to Hazaribagh, Jharkhand; multiple arrests; triggered political crisis

Important Points for UPSC:

- Legislative history: India had no dedicated examination integrity law before 2024; malpractice was prosecuted under IPC sections (cheating, forgery); these were inadequate for organised crime networks operating paper leak syndicates
- Organised crime dimension: Paper leak in India involves organised networks – printers' employees stealing papers, corrupt officials selling question sets, WhatsApp-based distribution; Rs 100-200 crore industry; candidates paying Rs 10-30 lakh for papers
- NEIB structure: Permanent body under Ministry of Personnel; chairperson of Secretary rank; includes cybersecurity experts, former education secretaries, legal experts; has suo motu power to investigate examination authorities
- State examinations significance: Most competitive jobs in India are through state government exams; bringing these under NEIB oversight extends the law's reach to 90%+ of competitive examinations
- Digital examination push: NEIB will mandate digital examinations (Computer Based Tests) for all major public examinations by 2028; eliminates paper-based examinations where physical paper theft is possible





- PM's task force: Separate from the Amendment Bill; high-powered task force on examination reforms will review NTA's structure, suggest whether NEET-UG should be decentralised, and recommend long-term changes
- Article 16 connection: Right to equality in public employment (Article 16) is directly undermined by paper leaks – the Amendment Bill is a constitutional obligation, not just a policy choice

INDIA'S EXPORTS REACH RECORD \$863.1 BILLION IN FY2025-26

Ministry: Ministry of Commerce & Industry / DGCI&S

PIB Date: 28th July 2026

Easy Explanation

India's total exports – merchandise (goods) plus services – reached a record \$863.1 billion in FY2025-26, growing approximately 12% from the previous year's \$770 billion. This milestone places India firmly on a trajectory toward its \$2 trillion export target by 2030. The \$863.1 billion figure: merchandise exports were approximately \$442 billion (electronics, engineering products, chemicals, pharma, textiles, gems & jewellery, agricultural products); services exports were approximately \$421.3 billion (IT/BPO, financial services, professional services) – crossing \$421 billion for the first time. Services are now almost equal to merchandise exports, reflecting India's transformation into a significant knowledge economy exporter. The key drivers this year: electronics exports crossed \$35 billion (driven by mobile phone exports – Apple iPhones, Samsung); pharma exports strong at \$27 billion; engineering goods grew to \$110 billion; IT services \$200+ billion. The three largest export destinations – UAE, UK, and Australia – reflect the diversification strategy and the trade agreements (CETA with UK entered force July 15, CEPA with UAE since 2022, ECTA with Australia since 2022).

Key Terms:

Term	Definition
\$863.1 billion total exports	FY2025-26 record; merchandise \$442 billion + services \$421 billion; 12% growth YoY; on track for \$2 trillion by 2030 target
Merchandise exports	Physical goods exported: engineering (\$110B), electronics (\$35B), chemicals (\$32B), pharma (\$27B), gems/jewellery (\$38B), textiles (\$38B), agricultural (\$55B)
Services exports	\$421.3 billion in FY2025-26; IT/BPO services dominant (\$200B+); growing in business services, financial services, healthcare tourism; India is 4th largest global services exporter





DGCI&S	Directorate General of Commercial Intelligence and Statistics – Kolkata; compiles India's trade statistics; publishes monthly export-import data
PLI contribution to exports	PLI schemes credited for mobile phones (\$23B exports), pharma APIs, specialty chemicals – aggregate PLI contribution to merchandise exports estimated Rs 1.5 lakh crore
\$2 trillion target by 2030	India's merchandise + services export target; requires 15-16% annual growth from current base; achievable if FTA momentum, PLI, and global supply chain reorientation continues
Trade deficit	India's imports are also large (\$700+ billion); trade deficit remains significant; services surplus partially offsets merchandise deficit

Important Points for UPSC:

- Milestone context: India's exports were \$300 billion in 2014-15; \$863 billion in 2025-26 = nearly 3x in 11 years; reflects economic transformation from domestic-consumption-driven to export-driven growth model
- Services parity: Services exports (\$421B) almost equal to merchandise exports (\$442B) for the first time; India is unusual globally – most large exporters are merchandise-heavy; India's services strength is a competitive advantage
- Top 3 destinations: UAE (CEPA since 2022), UK (CETA from July 2026), Australia (ECTA from 2022) – all three are FTA partners; demonstrates FTA impact on export geography
- Electronics breakthrough: \$35 billion electronics exports dominated by mobile phones; in 2020, India barely exported \$5 billion in electronics – PLI's transformation is visible here
- China comparison: China exports \$3.5 trillion annually; India at \$863 billion is 25% of China; however India's services exports are growing faster than any major economy; by 2035 India could reach \$1.5-2 trillion in services alone
- Balance of Payments impact: Strong export performance helps stabilise the rupee and reduces dependence on portfolio capital inflows for external balance

INDIA RISES FROM 82ND TO 57TH IN GLOBAL PRO-COMPETITIVE REFORMS RANKING



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Ministry: Ministry of Commerce & Industry / DPIIT

PIB Date: 30th July 2026

Easy Explanation

The Competere Foundation – an independent international economic research organisation – released its Global Pro-Competitive Reforms Index this week, showing India jumping from 82nd to 57th rank. A 25-rank improvement in a single year is exceptionally rare in any global index and reflects a genuine structural shift in India's regulatory environment. The Index measures how effectively a country is removing barriers to competition – whether new businesses can enter markets easily, whether dominant incumbents face effective regulation, whether consumers can access competitive prices. India's specific improvements that drove the jump: the Competition Amendment Act 2023 (which strengthened CCI's powers, introduced deal value thresholds for merger notifications, and added anti-trust provisions for digital markets); the Telecommunications Act 2023 (which opened spectrum allocation and reduced barriers for new telecom entrants); the Jan Vishwas Act 2023 (which decriminalised 183 minor offences across 42 Acts); and India's evolving Open Network for Digital Commerce (ONDC) which is breaking e-commerce monopolies by enabling any seller and buyer to transact across a common digital protocol.

Key Terms:

Term	Definition
Competere Foundation Index	Global Pro-Competitive Reforms Index; measures barriers to competition, ease of market entry, effectiveness of anti-trust regulation, consumer protection; India 82nd to 57th
Competition Amendment Act 2023	Strengthened CCI powers; introduced deal value thresholds (Rs 2,000 crore deal value triggers merger notification even if turnover threshold not met); added digital market provisions
CCI (Competition Commission of India)	India's anti-trust regulator; investigates anti-competitive practices, mergers; constituted under Competition Act 2002; gaining increasing importance in digital economy regulation
Jan Vishwas Act 2023	Decriminalised 183 minor offences across 42 Acts; converted prison terms to penalties for technical regulatory violations; reduced compliance burden significantly for small businesses
ONDC (Open Network for Digital Commerce)	India's open protocol for digital commerce; breaks monopoly of Flipkart/Amazon; any seller can list on any buyer-facing app; modelled on UPI's success in payments



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Deal value threshold	CCI merger notification triggered when deal value exceeds Rs 2,000 crore; specifically designed to capture large digital acquisitions that previously escaped anti-trust review
Market contestability	Economic concept: whether markets can be entered and exited easily; India's ranking improvement reflects higher contestability through regulatory reforms

Important Points for UPSC:

- Competition Act 2002: India's primary anti-trust law; based on EU competition law model; CCI constituted 2009; prohibits cartelisation, abuse of dominance, anti-competitive mergers
- Digital market regulation: Competition Amendment Act 2023 added provisions for 'significant digital enterprises' – companies with large user bases or network effects; first time India's competition law explicitly addresses digital monopolies
- Jan Vishwas Act categories: Decriminalised offences in food adulteration (minor cases), environment compliance (procedural), labour laws (minor violations), patent registration delays – businesses no longer fear criminal prosecution for paperwork errors
- ONDC impact: By breaking Amazon/Flipkart's dominance, ONDC increases competition in e-commerce; small merchants can now sell through any app (Paytm, PhonePe, Meesho) not just Amazon/Flipkart
- 82nd to 57th: The jump of 25 ranks is one of the top 10 largest single-year improvements globally; largest among G20 economies this year
- Investment connection: Pro-competitive reforms → lower barriers to entry → more businesses invest → more jobs → more exports; the \$863 billion export record and this ranking improvement are causally linked

MAHANADI WATER DISPUTE – CHHATTISGARH-ODISHA SETTLEMENT FACILITATED

Ministry: Ministry of Home Affairs / Ministry of Jal Shakti

PIB Date: 30th July 2026

Easy Explanation

The Mahanadi is Odisha's lifeline. The river originates in Chhattisgarh's Sihawa hills, flows 858 km, and drains into the Bay of Bengal through Odisha – passing through the Hirakud Dam, India's longest earthen dam, before reaching the sea. Odisha has built its entire agricultural economy around the Mahanadi: the



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Hirakud reservoir irrigates 1.2 million hectares in western Odisha, the river supports millions of fishermen, and the delta is one of India's most productive rice-growing regions. The dispute: Chhattisgarh built several barrages and dams on the upper Mahanadi after 2000 – water harvesting structures to irrigate its own farmers. Odisha complained that these upstream structures were reducing the flow reaching Hirakud. The dispute had been pending before the Mahanadi Water Disputes Tribunal (constituted 2018 under the Inter-State River Water Disputes Act 1956) without resolution. This week, Union Jal Shakti Minister CR Patil chaired a meeting with the Chief Ministers of both states and facilitated a preliminary settlement framework – both states agreed to: share real-time river flow data through a common digital platform; Chhattisgarh will maintain minimum flows at specified monitoring stations; a joint technical committee will assess existing structures; and both states will consult before any new water storage construction.

Key Terms:

Term	Definition
Mahanadi River	858 km; originates Sihawa, Chhattisgarh; flows through Odisha; drains into Bay of Bengal near Paradip; Hirakud Dam is its largest reservoir; major river of Eastern India
Hirakud Dam	Sambalpur, Odisha; built 1957; longest earthen dam in the world (26 km including dykes); reservoir stores 5.8 billion cubic metres; generates 347.5 MW; irrigates 1.2 million hectares
Mahanadi Water Disputes Tribunal	Constituted 2018 under Inter-State River Water Disputes Act 1956; proceedings have been slow; this week's facilitated framework bypasses tribunal for immediate relief measures
Inter-State River Water Disputes Act 1956	Provides for tribunals to adjudicate river water disputes between states; Article 262 bars Supreme Court jurisdiction; tribunals can take decades (Cauvery Tribunal took 17 years)
Minimum environmental flow	Minimum water flow that must be maintained in a river at all times to sustain its ecosystem; agreed between CG and Odisha as part of the settlement framework
Article 262 of Constitution	Parliament can adjudicate inter-state river water disputes; can exclude Supreme Court jurisdiction; this is why inter-state river disputes go to tribunals, not courts
Real-time data sharing	Key settlement element; IoT sensors on river at monitoring stations in Chhattisgarh to share live flow data with Odisha; prevents disputes about whether Chhattisgarh is diverting water





Important Points for UPSC:

- Mahanadi dispute timeline: Odisha filed complaint 2016; Mahanadi Water Disputes Tribunal constituted 2018; proceedings ongoing; this week's ministerial facilitation is outside the tribunal but does not replace it
- Hirakud Dam importance: Built 1957; 17 million people depend on it for irrigation and drinking water; Hirakud reservoir is also a major fisheries resource; 2 lakh+ fishermen depend on it
- Article 262: Parliament can adjudicate inter-state river water disputes; can exclude Supreme Court jurisdiction; unique constitutional provision worth memorising
- Chhattisgarh's position: Chhattisgarh argues it has the right to use rainwater falling in its territory before it flows downstream; 80%+ of Mahanadi's catchment is in Chhattisgarh; upstream rights vs downstream needs is the core tension
- Odisha's position: International water law principle of prior appropriation — Hirakud was built first (1957) and Odisha designed its agricultural system around expected river flows; upstream changes reducing these flows are inequitable
- Both BJP states: Chhattisgarh and Odisha are BJP-ruled; centre-facilitated settlement between co-partisan states is politically easier; pattern consistent with Narmada and Kishau settlements
- Comparison with Cauvery: Cauvery dispute (Karnataka-Tamil Nadu) took decades in court and tribunal; even after Supreme Court order, implementation disputes continue; Mahanadi's facilitated settlement approach may prove faster but depends on political goodwill holding

INS NIPUN — SECOND INDIGENOUS DIVING SUPPORT VESSEL DELIVERED

Ministry: Ministry of Defence / Indian Navy

PIB Date: 30th July 2026

Easy Explanation

The ocean floor is increasingly important for both warfare and economics. Undersea cables carry 95% of the world's internet and financial data. Undersea pipelines carry oil and gas. Submarine cables can be tapped for intelligence. Underwater mines, unexploded ordnance, and crashed submarines need to be recovered or neutralised. All of these tasks require specialised ships that can support human divers and underwater remotely operated vehicles (ROVs) in deep-sea operations. INS Nipun — the second of India's indigenously built Diving Support Vessels (DSVs) — was delivered to the Indian Navy this week. The first DSV was INS Nistar, delivered in 2023. Together, INS Nistar and INS Nipun give India a dual-vessel deep-sea diving



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capability that was previously limited to a single aging vessel. INS Nipun is built by Cochin Shipyard Limited (CSL) and can support saturation diving operations (where divers live and work at depths of up to 300 metres for extended periods), deploy ROVs for underwater inspection and salvage, and provide search and rescue support for submarine emergencies. India's inability to mount rapid underwater rescue was exposed during the INS Sindhurakshak tragedy (2013, where 18 sailors died in a submarine explosion) – INS Nipun directly addresses this gap.

Key Terms:

Term	Definition
INS Nipun	Second indigenous Diving Support Vessel; built by Cochin Shipyard Limited; supports saturation diving (300 m depth), ROV deployment, submarine rescue; delivered July 2026
DSV (Diving Support Vessel)	Specialised ship providing life support, equipment, and decompression facilities for deep-sea divers; enables saturation diving and underwater operations at 200-300 m depth
Saturation Diving	Diving technique where divers live in a pressurised habitat at surface, breathe helium-oxygen mixture, and work at depth for extended periods (days/weeks) without repeated decompression
ROV (Remotely Operated Vehicle)	Unmanned underwater vehicle tethered to surface ship; equipped with cameras, manipulator arms, sensors; used for inspection, salvage, mine clearance, and cable/pipeline maintenance
DSRV (Deep Submarine Rescue Vehicle)	Specialised rescue submarine that can mate with a disabled submarine on the sea floor and transfer crew to safety; India operates 1 DSRV (acquired from UK, 2018); INS Nipun supports DSRV deployment
Undersea cables	200+ undersea cables connect India to the world; India is vulnerable to cable sabotage; DSVs can inspect and repair cable damage
CSL (Cochin Shipyard Limited)	India's largest commercial shipyard; also built INS Vikrant (aircraft carrier, 2022); INS Nistar and Nipun show CSL's capability extends beyond surface ships to specialised vessels

Important Points for UPSC:



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- India's submarine fleet: 15-16 operational submarines; growing to 24 submarines by 2030 under Project 75I; DSV support essential for this expanded fleet
- INS Sindhurakshak tragedy (2013): Diesel submarine caught fire and sank at Mumbai naval dockyard; 18 sailors died; lack of adequate DSV and DSRV capability meant no rescue was possible; INS Nipun directly addresses this gap
- Nistar vs Nipun: INS Nistar (DSV 1) delivered 2023; INS Nipun (DSV 2) delivered July 2026; two DSVs – one for western coast, one for eastern/Bay of Bengal
- Deep-sea mining: India's EEZ has substantial polymetallic nodules (containing copper, cobalt, nickel, manganese) at 4,000-6,000 m depth; DSVs support exploration and eventual mining of these resources
- Undersea cable protection: Red Sea Houthi attacks included cutting undersea internet cables (2024); India has major undersea cable landing stations at Mumbai, Chennai, Kochi; INS Nipun can inspect and support repair of cables in Indian waters
- Project 75I: India's next-generation submarine acquisition (6 conventional submarines with advanced air-independent propulsion); total 24-submarine target by 2030; INS Nipun ensures adequate support infrastructure for this expanding fleet

INS MACHILIPATNAM – 7TH MAHE-CLASS ASW SHALLOW WATER CRAFT LAUNCHED

Ministry: Ministry of Defence / Indian Navy / L&T Shipbuilding

PIB Date: 29th July 2026

Easy Explanation

We covered INS Agray (5th, Week 4) and INS Malvan (6th, Week 8) of the Arnala/Mahe-class Anti-Submarine Warfare Shallow Water Craft series. This week, INS Machilipatnam – the 7th vessel of this class – was launched (not yet commissioned; 'launched' means the hull enters water for the first time; commissioning follows after sea trials and fitting out). INS Machilipatnam is named after the historic port city in Andhra Pradesh – one of India's oldest seaports, an important trading centre of the Qutb Shahi and later British era. The Dutch East India Company had its first Indian factory here (1605). The naming convention for this class – Arnala, Agray, Malvan, Machilipatnam – reflects India's coastal maritime heritage, honouring historic ports, islands, and naval stations along India's 7,500 km coastline. The commissioning pipeline for this class is among the fastest in Indian naval history: all 8 vessels were contracted in 2019, construction began in 2021, and all 8 are expected to be commissioned by 2027. With 7 of 8 vessels now launched or commissioned, India is building what will be the world's largest fleet of specialised anti-submarine shallow water craft – a deliberate strategic choice to dominate India's coastal and near-shore undersea domain.



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**Key Terms:**

Term	Definition
INS Machilipatnam	7th Mahe-class (Arnala-class) ASW Shallow Water Craft; launched July 2026; L&T Shipbuilding, Kattupalli, Tamil Nadu; named after historic AP port city
Launch vs Commissioning	Launch: hull floated for first time; vessel not yet operational; Commissioning: vessel formally inducted into Navy after completion of fitting, sea trials, and crew training
Mahe-class nomenclature	The class is named after both Arnala (Maharashtra island) and Mahe (Kerala coastal town); 8 vessels total; all named after historic Indian coastal locations
L&T Shipbuilding	Larsen & Toubro's defence shipbuilding division; Kattupalli Port, Tamil Nadu; built 4 of 8 Arnala-class (GRSE Kolkata building the other 4); largest private defence shipbuilder in India
Machilipatnam (Masulipatnam)	Historic port city, Krishna district, Andhra Pradesh; one of India's oldest seaports; Dutch East India Company had its first Indian factory here (1605); famous for Machilipatnam Kalamkari textile art
ASW SWC capability	Anti-Submarine Warfare Shallow Water Craft; hunts submarines in waters <200 m depth; waterjet propulsion for shallow operation; dunking sonar, torpedoes, anti-sub rockets; 750 tonne displacement
8-vessel programme timeline	Contracted 2019; construction 2021; launch/commission 2024-2027; all 8 vessels in under 6 years – exceptional execution speed for specialised naval vessels

Important Points for UPSC:

- Naming significance: Machilipatnam was the site of India's first encounter with Dutch colonial trade (1605); its naval heritage makes it an apt name for a warship protecting India's coastal sovereignty
- 8-vessel rationale: India has 7,500 km coastline + 1,382 islands; 2 major naval commands (Western: Mumbai, Eastern: Visakhapatnam) + Southern Command (Kochi); 8 ASW SWCs ensures 3-4 per command plus rotational maintenance/refit





- Waterjet propulsion: ASW SWCs use waterjets instead of propellers; waterjets can operate in water as shallow as 1-2 metres; allows the vessel to enter very shallow harbours, estuaries, and coastal waters where submarines might lurk near India's ports
- Pakistan submarine threat: Pakistan's 5 submarines have been observed attempting to penetrate Indian coastal waters during exercises; Arnala-class SWCs designed to detect and track them in shallow-water approaches
- Series commissioning velocity: INS Agray (June 2026) + INS Malvan (July 2026) + INS Machilipatnam launch (July 2026) – India commissioning or launching a naval vessel almost every fortnight in 2026
- Kalamkari connection: Machilipatnam is also famous for Kalamkari – traditional hand-painted/block-printed cotton textile art; recognized as a Geographical Indication (GI) product; the city's maritime and cultural heritage makes it symbolically rich

FAVARA-UPI CROSS-BORDER PAYMENT CORRIDOR — MALDIVES AND INDIA

Ministry: Ministry of Finance / NPCI International / Reserve Bank of India

PIB Date: 31st July 2026

Easy Explanation

The Maldives is a country whose economy is almost entirely built on Indian tourists and Indian goods. Before this week, a Maldivian business owner receiving payment from an Indian tourist had to use expensive international wire transfers, credit card payments (with 2-3% merchant fees), or cash. Favara – a Maldivian fintech company operating the country's domestic payment infrastructure – went live with a direct UPI-to-Favara cross-border payment corridor on July 31. This means: an Indian tourist can open their BHIM, Google Pay, or PhonePe app, scan a QR code at a Maldivian resort or shop, and pay in rupees – the system automatically converts the payment to Maldivian Rufiyaa at the interbank rate and credits the merchant's Favara account. No currency exchange, no hidden fees, no 2-3 day settlement wait. This is more than a convenience story. The India-Maldives FTA (first round concluded in Week 7) requires payment infrastructure to enable trade; UPI-Favara is the payment infrastructure. India's diplomatic reset with the Maldives needed an economic anchor; UPI integration creates one – Maldivian businesses now have a material financial interest in maintaining smooth relations with India. For India, it is the 11th country where UPI operates internationally, continuing the relentless expansion of India's payment technology as a soft power tool.

Key Terms:

Term	Definition
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Favara	Maldivian fintech company; operates Maldives' domestic payment infrastructure; partnered with NPCI International for UPI-Favara cross-border corridor
UPI-Favara corridor	Direct cross-border payment: Indian UPI app → scan Maldivian merchant's QR code → payment auto-converted Rupee to Rufiyaa → credited to merchant's Favara account; real-time settlement
Rufiyaa (MVR)	Maldivian Rufiyaa – official currency; exchange rate approximately Rs 5.2 per Rufiyaa; previously required US dollar intermediation for India-Maldives payments; now direct Rupee-Rufiyaa
NPCI International	NPCI's subsidiary for international UPI deployment; partners with foreign payment systems; manages bilateral payment corridors in UAE, Singapore, France, UK, Greece, Maldives etc.
India-Maldives trade	\$400 million bilateral trade; India is Maldives' largest trading partner; 60%+ of Maldives' food imports come from India; UPI integration reduces friction for this trade
Indian tourists to Maldives	India is consistently Maldives' #1 tourism source country; 2+ lakh Indian tourists annually; UPI payments remove the need for currency exchange at resorts
Rupee internationalisation	India's broader goal of making the rupee an international currency for trade settlement; UPI corridors create soft rupee internationalisation – rupees used directly in international transactions without US dollar intermediation

Important Points for UPSC:

- 11 UPI countries: UAE, Singapore, Mauritius, Bhutan, Nepal, Sri Lanka, France, UK, Malaysia, Greece (Week 8), and now Maldives – each new country adds to the network effect; more countries = more useful for Indian travellers and diaspora
- Rupee-Rufiyaa direct settlement: Previously India-Maldives payments went Rupee → US Dollar → Rufiyaa (two currency conversions, two sets of fees); now Rupee → Rufiyaa directly; approximately 3-5% transaction cost saving





- Diplomatic timing: India-Maldives FTA first round concluded (Week 7); Favara-UPI goes live (this week); diplomatic normalisation backed by economic integration – India's consistent playbook with Indian Ocean neighbours
- Maldives economic leverage: Maldives' tourism GDP is 80%+ of its economy; Indian tourists are the largest source; UPI integration makes India's economic leverage permanent and digital
- Fintech diplomacy: India-UAE real-time payment link signed during PM Modi's UAE visit; India-France UPI launched at France visit; India-Maldives Favara-UPI follows the same pattern – digital payment integration as a diplomatic deliverable
- RBI oversight: Cross-border UPI transactions go through the RBI's legal framework for international remittances; both RBI and Maldives Monetary Authority (MMA) approved the corridor

SINTERED RARE EARTH PERMANENT MAGNET (REPM) SCHEME — CRITICAL MINERALS + EV MOTORS

Ministry: Ministry of Heavy Industries

PIB Date: 29th July 2026

Easy Explanation

Every electric vehicle has a motor. The most efficient EV motors – used in Tesla, BYD, Hyundai, Tata Nexon EV, and most modern EVs – use Rare Earth Permanent Magnets (REPMs) made from neodymium, dysprosium, and praseodymium – rare earth elements. These magnets are 5-10 times more powerful than conventional iron magnets for the same weight, which is why they enable high-torque, lightweight, efficient EV motors. The problem: China produces 85-90% of the world's processed rare earth elements and 70%+ of rare earth permanent magnets. Every EV motor in India – whether made by Tata Motors, Mahindra, or Bajaj – uses Chinese magnets. This is precisely the kind of supply chain dependence that can be weaponised: China restricted rare earth exports to Japan in 2010 during a territorial dispute, causing a global panic. The Ministry of Heavy Industries this week extended the bid submission timeline for the global tender under the Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets (REPM Scheme). The REPM scheme offers production-linked incentives for companies that manufacture sintered NdFeB (Neodymium Iron Boron) magnets in India; technology transfer facilitation with global magnet manufacturers; and access to the Ministry's critical minerals framework for domestic raw material sourcing.

Key Terms:

Term	Definition
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Sintered REPM	Sintered Rare Earth Permanent Magnet; made from Neodymium (Nd), Iron (Fe), Boron (B) – NdFeB magnets; produced by sintering (compressing and heating rare earth powder); most powerful permanent magnet type
NdFeB magnet	Neodymium Iron Boron magnet; discovered 1982; strongest type of permanent magnet; enables compact, lightweight, high-torque EV motors
REE (Rare Earth Elements)	17 elements including neodymium, dysprosium, praseodymium, cerium; China controls 85% of global REE processing; India has significant reserves (6th globally) but limited processing
China's 2010 REE export restriction	China cut rare earth exports to Japan by 40% during 2010 Senkaku Islands dispute; Japan's electronics and auto industry severely disrupted; directly motivated global REE supply chain diversification
EV motor types	Two main types: Permanent Magnet Synchronous Motor (PMSM) – uses REPM, most efficient; Induction Motor (IM) – no magnets, less efficient; most Indian EVs use PMSM
Defence magnets	REPMs are critical in defence: guidance systems for missiles (Akash, Kushi), radar motors, sonar transducers, drone motors; defence dependence on China for REPMs is a direct strategic vulnerability
REPM scheme	PLI-type incentives for domestic NdFeB magnet manufacturing; technology transfer facilitation; extended bid timeline suggests designing genuinely competitive tender

Important Points for UPSC:

- India's REE reserves: India has 6.9 million tonnes of REE reserves (6th globally); primarily in Odisha, Andhra Pradesh (monazite-bearing beach sands), Rajasthan (bastnaesite deposits); REPM scheme addresses downstream while Critical Minerals auctions address upstream
- EV motor demand: India's 2030 EV target = 3 crore EVs/year; each EV motor uses 1-3 kg of NdFeB magnets; 3 crore EVs = 30,000-90,000 tonnes of REPM demand annually; currently India imports 100% from China





- Defence critical dimension: Kusha LRSAM (Week 8) seeker uses REPMs; as India builds indigenous missiles, dependence on Chinese REPMs is a strategic vulnerability – REPM scheme addresses this
- Japan's experience: After China's 2010 restriction, Japan invested massively in REE recycling, alternative magnet research, and overseas REE mining; REPM scheme is India's equivalent first step
- PLI-type incentives: REPM scheme modelled on PLI; performance-linked payments over 5 years; technology transfer facilitation connects Indian companies with Japanese (TDK, Shin-Etsu), German (Vacuumschmelze), or US manufacturers
- Recycling potential: End-of-life EV motors, hard drives, wind turbine generators contain REPMs that can be recycled; India's growing EV and electronics scrap will create a domestic REE recycling industry

LegRAA — AI-BASED LEGAL RESEARCH ASSISTANT FOR INDIA'S COURTS

Ministry: Ministry of Law and Justice / National Informatics Centre

PIB Date: 31st July 2026

Easy Explanation

India's courts have 5 crore pending cases. A judge hearing a case on, say, a property dispute in Allahabad High Court might need to know: what are all the relevant precedents on adverse possession? What has the Supreme Court said about limitation periods in property cases? Getting answers to these questions currently requires manual search through thousands of case reports – a task that takes hours or days. LegRAA (Legal Research Analysis Assistant) – developed by the Artificial Intelligence Division of the National Informatics Centre (NIC) in collaboration with the Centre of Excellence for eCourts – is an AI-powered legal research tool deployed within India's court systems. It is built on a large language model specifically trained on: (1) Supreme Court and High Court judgments (entire database going back decades); (2) bare text of all central Acts and Rules; (3) Constitution of India and its interpretations. A judge or judicial officer types a natural language query – 'What is the Supreme Court's position on anticipatory bail for economic offences?' – and LegRAA retrieves, analyses, and synthesises the most relevant case law, citing specific paragraphs of judgments. This is not just a search engine – it synthesises arguments and identifies evolving judicial positions. LegRAA is currently deployed as an internal tool for judges and their research assistants; it is not yet available to litigants or the public.

Key Terms:

Term	Definition
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LegRAA	Legal Research Analysis Assistant; AI tool built by NIC; trained on SC/HC judgments, Acts, Constitution; helps judges research precedents through natural language queries; deployed within court systems
NIC (National Informatics Centre)	Government of India's IT arm; under MeitY; developed India's major e-governance platforms including CPGRAMS, NeSDA, eCourts portal, PFMS; AI Division developed LegRAA
eCourts Mission Mode Project	Digitisation of India's courts (Phase I 2007, Phase II 2015, Phase III 2023-27); created the digital infrastructure on which LegRAA operates
Large Language Model (LLM)	AI model trained on vast text data; can understand and generate natural language; LegRAA uses an LLM specifically fine-tuned on Indian legal texts – different from general LLMs like ChatGPT
5 crore pending cases	India's judicial backlog: 5 crore+ cases pending across all courts; Supreme Court: 80,000+; High Courts: 60 lakh+; District Courts: 4.4 crore+; LegRAA accelerates research, potentially reducing time per case
SUPACE	Supreme Court Portal for Assistance in Court Efficiency – SC's own AI portal; LegRAA complements SUPACE by extending AI research assistance to High Courts and District Courts
Judicial precedent research	Indian law is heavily precedent-based (stare decisis); a judge must know prior decisions on each point of law; manual research through thousands of judgments is a major bottleneck; LegRAA automates this

Important Points for UPSC:

- SUPACE vs LegRAA: SUPACE (Supreme Court) focuses on case management and document processing; LegRAA (NIC, across courts) focuses specifically on legal research and precedent identification – complementary, not competing
- Access to justice dimension: LegRAA initially for judges only; future versions planned for legal aid lawyers (Tele-Law, DISHA 2.0 coverage) to help them research cases for poor clients – could significantly improve quality of free legal aid





- eCourts Phase III: Rs 7,000 crore outlay (2023-2027); LegRAA is a Phase III initiative; Phase III also includes AI-powered case scheduling, virtual courts expansion, and litigant apps
- Language barrier: Indian courts use English but most litigants speak regional languages; future LegRAA versions (using BHASHINI) will enable judges to query in Hindi, Tamil, Telugu etc. — multilingual judicial AI
- Confidentiality: LegRAA operates only on publicly available judgments and Acts — no confidential case details are processed; privacy concerns are managed through this design
- Global comparison: USA's Westlaw and LexisNexis are commercial AI legal research tools; India's LegRAA is government-built, free to courts, and specifically trained on Indian legal system — superior for Indian judicial purposes

DAANVEER — DIGITAL INFRASTRUCTURE INITIATIVE FOR INDIA'S GRAM PANCHAYATS

Ministry: Ministry of Panchayati Raj

PIB Date: 29th July 2026

Easy Explanation

India has 2.5 lakh Gram Panchayats (GPs) — the most basic unit of rural self-governance, covering 6 lakh villages and 80+ crore rural citizens. The 73rd Constitutional Amendment (1992) gave panchayats constitutional status and mandated them to function as institutions of self-government. But in practice, most GPs remain severely under-resourced in digital infrastructure: unreliable internet connectivity, no dedicated servers or cloud access, minimal computing devices, and staff with limited digital literacy. This means GPs cannot effectively use the digital tools available to them — e-GramSwaraj, SVAMITVA maps, SAMARTH portal, and various DBT systems through which central government funds flow. DAANVEER — Digital Access and Assistance for New-age Village Engagement and Revitalisation — launched by the Ministry of Panchayati Raj this week, is a campaign-mode initiative to close this digital infrastructure gap. It works through a unique civil society + corporate CSR model: companies and individuals can donate digital infrastructure (laptops, connectivity devices, solar-powered UPS units, tablets) directly to GPs through the DAANVEER portal, with the Ministry coordinating procurement and deployment. The name is deliberately chosen — 'Daanveer' (one who gives generously) — drawing on the Indian tradition of charitable giving (daana) and directing it toward national governance infrastructure.

Key Terms:

Term	Definition
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DAANVEER	Digital Access and Assistance for New-age Village Engagement and Revitalisation; MoPR initiative; CSR + individual donation portal for digital infrastructure to gram panchayats
73rd Constitutional Amendment (1992)	Gave constitutional status to Panchayati Raj Institutions; inserted Part IX (Articles 243-243O) and 11th Schedule (29 subjects); mandated State Finance Commissions
e-GramSwaraj	Digital platform for GP planning, budgeting, and fund management; 2.5 lakh GPs are online; tracks GP expenditure, plans, and assets; DAANVEER provides hardware to make this more effective
Own Source Revenue (OSR)	Revenue collected by GPs from their own sources – property tax, user charges, fees; India's GPs collect only Rs 15,000-20,000 crore OSR/year vs Rs 3 lakh crore received from Centre
11th Schedule of Constitution	Lists 29 functions that can be transferred to Panchayats; includes agriculture, land improvement, fisheries, rural housing, roads, drinking water, primary education, health – actual transfer varies by state
DBT (Direct Benefit Transfer)	Central government transfers scheme benefits directly to beneficiaries' bank accounts; GPs need digital infrastructure to verify beneficiaries and facilitate DBT processes at village level
CSR (Corporate Social Responsibility)	Companies with turnover >Rs 1,000 crore or net profit >Rs 5 crore must spend 2% of average net profit on CSR (Section 135, Companies Act 2013); DAANVEER channels CSR toward GP digital infrastructure

Important Points for UPSC:

- Digital divide at GP level: Within rural India, a further gap exists between block headquarters (with internet, computers) and village-level GPs (often with one government computer, unreliable power, no broadband); DAANVEER targets this last-mile gap
- SAMARTH portal: Launched same week as DAANVEER; enables GPs to collect own source revenue (property tax, water charges) digitally; model OSR rules released; GPs with better digital infrastructure (from DAANVEER) can use SAMARTH more effectively





- Finance Commission Grants: 15th Finance Commission allocated Rs 4.36 lakh crore to PRIs (2021-26); Rs 2.36 lakh crore to GPs; but absorptive capacity is low because GPs lack infrastructure; DAANVEER addresses this absorptive capacity gap
- Solar UPS dimension: Many GPs have electricity connections but suffer frequent power cuts; DAANVEER includes solar-powered UPS units to ensure digital devices remain operational even during outages
- PESA Act 1996: In Scheduled (tribal) areas, GPs have additional powers; digital infrastructure in tribal GPs (through DAANVEER) would enable better PESA implementation – tracking forest rights, MGNREGA assets, and tribal welfare schemes
- Community model: Unlike previous government IT schemes (where equipment was procured centrally and distributed), DAANVEER allows GPs to specify what they need and receive targeted donations – demand-driven approach

SAF + CORSIA — INDIA'S AVIATION DECARBONISATION STRATEGY

Ministry: Ministry of Civil Aviation / DGCA

PIB Date: 29th July 2026

Easy Explanation

Aviation is one of the hardest sectors to decarbonise. You cannot electrify a long-haul aircraft with today's battery technology (batteries are too heavy), and hydrogen aircraft are decades away from commercial deployment. The aviation industry's answer to near-term decarbonisation is twofold: Sustainable Aviation Fuel (SAF) and CORSIA. Sustainable Aviation Fuel is jet fuel made from non-fossil sources – agricultural residues (wheat straw, sugarcane bagasse), municipal solid waste, algae, or even atmospheric CO₂. SAF is a 'drop-in' fuel – it works in existing jet engines without modification and can be blended with conventional jet fuel in ratios up to 50%. When used, SAF reduces life-cycle carbon emissions by 50-80% compared to conventional jet fuel because the CO₂ released during combustion was recently absorbed from the atmosphere, rather than being carbon stored underground for millions of years (as in fossil fuels). CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) is ICAO's global carbon mechanism: airlines flying international routes must offset any growth in CO₂ emissions above 2019 baseline levels by purchasing carbon credits from offset projects. India's Civil Aviation Minister this week reviewed India's preparedness for both SAF adoption and CORSIA compliance – which becomes mandatory for all ICAO member states from 2027.

Key Terms:

Term	Definition
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SAF (Sustainable Aviation Fuel)	Jet fuel from non-fossil sources (agricultural waste, MSW, algae, e-fuels); reduces life-cycle CO ₂ by 50-80%; drop-in fuel (works in existing aircraft without modification)
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation; ICAO mechanism; airlines must offset emission growth above 2019 baseline by purchasing carbon credits; mandatory from 2027
ICAO (International Civil Aviation Organisation)	UN specialised agency for civil aviation; Montreal; sets global standards for air navigation, safety, security, environment; India is a founding member; CORSIA is ICAO's primary climate mechanism
Drop-in fuel	Fuel that can be used in existing aircraft engines without modification; SAF is a drop-in fuel when blended up to 50% with conventional jet fuel; makes transition economically feasible
Life-cycle emissions	Total CO ₂ emitted from production, transport, and combustion of a fuel; SAF's life-cycle emissions are 50-80% lower than conventional jet fuel even though combustion releases similar CO ₂
Carbon credit	Tradeable certificate representing 1 tonne CO ₂ reduced or sequestered; airlines buy credits to offset their excess emissions under CORSIA; India has potential to sell credits from forest conservation
EU SAF mandate	RefueEU Aviation regulation mandates SAF blending: 2% from 2025, 6% from 2030, 20% from 2035, 70% from 2050; all flights to/from EU airports must use SAF; Indian carriers flying to Europe must comply

Important Points for UPSC:

- India's aviation context: India's domestic aviation market (2nd largest in Asia, growing 15%/year) currently uses 8-9 million tonnes of jet fuel annually; international routes use another 3-4 million tonnes; all of this must transition to SAF over 2025-2050
- CORSIA mandatory from 2027: Airlines from CORSIA-participating states must calculate their international emissions, compare to 2019 baseline, and buy credits for any excess; India's airlines (Air India, IndiGo, SpiceJet international routes) must comply





- SAF production in India: India has enormous biomass potential – sugarcane bagasse (350 million tonnes/year), rice straw (100 million tonnes/year), municipal solid waste; MNRE and MoCA jointly developing a SAF Production Support Scheme
- Cost premium: SAF currently costs 3-5x more than conventional jet fuel; government support (production incentives, blending mandates) needed to bridge the cost gap; as production scales, cost premium expected to fall to 1.5-2x by 2035
- India's offset credit opportunity: Under CORSIA, airlines buy offsets from projects in developing countries; India's large forest area, renewable energy projects, and cookstove projects generate CORSIA-eligible credits – India can be a net seller
- UDAN + SAF: Regional routes (UDAN scheme) using smaller turboprop aircraft are most amenable to early SAF adoption; hydrogen-powered regional aircraft would eventually replace turboprops on short routes

ATMANIRBHAR PANCHAYAT PROGRAMME + SAMARTH PORTAL – FISCAL EMPOWERMENT OF PRIs

Ministry: Ministry of Panchayati Raj

PIB Date: 27th July 2026

Easy Explanation

India's 2.5 lakh Gram Panchayats collect a combined Own Source Revenue (OSR) of only Rs 15,000-20,000 crore annually – a tiny fraction of what they spend (Rs 3+ lakh crore flows to GPs from Finance Commission grants + state devolution + central schemes). This means GPs are almost entirely dependent on upper governments for money, which means they are also dependent on upper governments for their political relevance. This is the fundamental weakness in India's decentralisation architecture: constitutional decentralisation (73rd Amendment, 11th Schedule) has not been matched by fiscal decentralisation. The Atmanirbhar Panchayat Programme, launched by Minister Rajiv Ranjan Singh this week, changes the incentive structure: GPs that increase their Own Source Revenue get additional discretionary funds from the Centre proportional to their OSR improvement. The accompanying SAMARTH Portal (Systematic Approach for Mobilising, Assessing and Reporting Tax/Taxes and Household receipts) provides digital tools for GPs to identify all taxable properties in their jurisdiction (using SVAMITVA drone data as the base), issue demand notices digitally, collect property tax via QR code/UPI, and track collection efficiency. Model OSR Rules were also released – templates that states can adopt to standardise the legal basis for GP property taxation, user charges for water/sanitation, and fee collection from markets and fairs.

Key Terms:



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Term	Definition
OSR (Own Source Revenue)	Revenue GPs collect themselves – property tax, water charges, sanitation fees, market fees; currently only Rs 15,000-20,000 crore/year nationally; Atmanirbhar Panchayat targets doubling this by 2030
SAMARTH Portal	Systematic Approach for Mobilising, Assessing and Reporting Tax/Taxes and Household receipts; digital tool for GP property tax identification, demand, collection, and reporting
73rd Constitutional Amendment 1992	Constitutionalised Panchayats; inserted Part IX; created 11th Schedule with 29 subjects; mandated State Finance Commissions; provided for reservation of seats in PRIs
11th Schedule	Lists 29 functions that can be transferred to Panchayats including agriculture, land improvement, fisheries, rural housing, roads, drinking water, primary health, primary education – actual transfer varies by state
State Finance Commission (SFC)	Constituted every 5 years by Governor of each state; recommends how taxes and grants should be distributed between state and PRIs; varies widely across states
Property tax as GP revenue	Property tax on buildings in rural areas is GPs' largest potential OSR source; most GPs have outdated property registers; SVAMITVA drone surveys provide the updated data needed for proper property tax assessment
Model OSR Rules	Template legal framework released by MoPR for states to standardise GP taxation powers; covers property tax, water tariff, solid waste user fee, market fee – states can adapt and adopt

Important Points for UPSC:

- Fiscal decentralisation gap: 73rd Amendment gave GPs constitutional status and functional responsibilities (11th Schedule); but actual tax powers remain with states; most GPs can only collect property tax and fees – this is the fundamental limitation SAMARTH works within
- SVAMITVA + SAMARTH synergy: SVAMITVA drone surveys mapped every property in 3.17 lakh villages; SAMARTH uses this data to generate property tax demand; previously GPs used outdated, incomplete property registers – SVAMITVA provides the accurate base data SAMARTH needs





- Proportional incentive design: The Atmanirbhar Panchayat Programme's incentive structure – Centre gives additional funds proportional to OSR growth – is a performance-based grant model; better than fixed grants because it rewards GPs that make the political effort to collect taxes from their own residents
- International comparison: Indonesia's village fund model (since 2015): each village gets a base fund but gets bonus funds if it collects more OSR; Indonesia has seen 300% OSR increase in 10 years; Atmanirbhar Panchayat is modelled on similar logic
- Political economy challenge: GP presidents (Sarpanchs) are reluctant to tax their own voters (who will vote them out in 5 years); SAMARTH's digital demand system reduces the political conflict by automating tax demand – the system sends demand, not the Sarpanch
- 15th Finance Commission: Allocated Rs 2.36 lakh crore to GPs (2021-26); with conditions – tied grants for sanitation and water supply; untied grants for GPs with better OSR performance; Atmanirbhar Panchayat aligns with this Finance Commission logic
- Urban comparison: Urban local bodies collect Rs 45,000-50,000 crore OSR (property tax, water, parking); rural GPs collect Rs 15,000-20,000 crore for a much larger area and population – rural areas systematically under-taxed; SAMARTH aims to correct this

SOWA-RIGPA — SIXTH SCHEDULE AREAS, AYUSH, AND TRADITIONAL TIBETAN MEDICINE

Ministry: Ministry of AYUSH / Ministry of Tribal Affairs

PIB Date: 27th July 2026

Easy Explanation

High in the Himalayas – in Ladakh, Spiti, Lahaul, Sikkim, Arunachal Pradesh, and the border areas of Uttarakhand – lives a system of traditional medicine that predates modern pharmaceuticals by over 2,500 years. Sowa-Rigpa (meaning 'Science of Healing' in Tibetan) is the traditional medical system of Tibetan, Himalayan, and Mongolian cultures. It uses a combination of herbal medicines (sourced from high-altitude medicinal plants including many rare and endangered species), mineral preparations, dietary therapy, behavioural modification, and spiritual practices to treat illness. Sowa-Rigpa is distinct from Ayurveda (though they share some roots in ancient Indian medical traditions), from TCM (Traditional Chinese Medicine), and from Unani – it is a fifth recognised Indian traditional medicine system alongside Ayurveda, Yoga, Unani, Siddha (the AYUSH acronym includes it). The National Institute of Sowa-Rigpa (NISR) in Leh, Ladakh – India's dedicated Sowa-Rigpa research and education institution – this week launched a Yoga Wellness Instructor Certificate Course in collaboration with Morarji Desai National Institute of Yoga (MDNIY). This combination is significant: Sowa-Rigpa is practised primarily in Sixth Schedule tribal areas (where



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autonomous councils govern tribal communities) and in Scheduled Tribe communities of the Himalayas; integrating it with Yoga creates a comprehensive traditional wellness offering for high-altitude communities who have limited access to allopathic medicine.

Key Terms:

Term	Definition
Sowa-Rigpa	Traditional medicine system of Tibetan, Himalayan and Mongolian cultures; recognised as 5th Indian traditional medicine system alongside Ayurveda, Yoga, Unani, Siddha; uses herbal, mineral, dietary and spiritual therapies
NISR	National Institute of Sowa-Rigpa, Leh, Ladakh; apex institution for Sowa-Rigpa research, education, and clinical practice; established under Ministry of AYUSH
MDNIY	Morarji Desai National Institute of Yoga, New Delhi; nodal institute for Yoga promotion; collaborated with NISR for the Yoga Wellness Instructor certificate course
Sixth Schedule	Constitutional provision (Article 244) for tribal areas in Assam, Meghalaya, Tripura, Mizoram; creates Autonomous District Councils with legislative and judicial powers; most Sowa-Rigpa practitioners are in tribal Himalayan areas
High-altitude medicinal plants	Sowa-Rigpa uses plants found above 3,000 m – Rhodiola, Hippophae (Sea Buckthorn), Aconitum, Swertia, Gentiana; many are rare/endangered; climate change threatens their availability
AYUSH recognition	AYUSH = Ayurveda, Yoga & Naturopathy, Unani, Siddha, Homeopathy; Sowa-Rigpa was formally added to AYUSH framework in 2020 (Sowa-Rigpa Act 2020); 5th traditional Indian medicine system
Sowa-Rigpa Act 2020	Legislation that formally recognised Sowa-Rigpa practitioners and regulated their education and practice; established national/state-level Sowa-Rigpa councils; brought it within India's formal healthcare framework

Important Points for UPSC:



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- Sowa-Rigpa Act 2020: India formally recognised Sowa-Rigpa through legislation; established Sowa-Rigpa Central Council; Diploma (D.Sow.R) and degree-level education standardised; practitioners can now obtain formal registration – similar to AYUSH practitioners under their respective Acts
- Sixth Schedule tribal areas: Most Sowa-Rigpa practitioners are in Ladakh (Union Territory, not Sixth Schedule but with autonomous district councils under 73rd Amendment), Sikkim, Arunachal Pradesh, and parts of Himachal Pradesh – predominantly tribal and remote areas where allopathic healthcare is limited
- Medicinal plant conservation: Sowa-Rigpa uses 300+ plant species from high-altitude regions; climate change is altering distribution of these plants (many moving higher as temperatures rise); NISR's research includes habitat mapping and ex-situ conservation of threatened medicinal species
- BRICS TCIM connection: BRICS 16th Health Ministers (Week 8) specifically called for standardisation of Traditional and Complementary Medicine; Sowa-Rigpa's integration into AYUSH framework and this week's Yoga-Sowa-Rigpa course positions India to lead TCIM standards for Himalayan traditional medicine
- Sea Buckthorn (*Hippophae rhamnoides*): Key Sowa-Rigpa plant; grows abundantly in Ladakh; berries have 15x more Vitamin C than oranges; anti-inflammatory properties; CSIR and DRDO have commercialised Sowa-Rigpa's sea buckthorn knowledge for nutraceuticals – a direct traditional knowledge to commercial pipeline
- Border area health: Sowa-Rigpa practitioners serve India's highest military posts – ITBP and Army personnel in Siachen, Kargil, and eastern Ladakh benefit from Sowa-Rigpa clinics; integrating Yoga with Sowa-Rigpa creates comprehensive wellness for soldiers in extreme conditions
- TKDL connection: Sowa-Rigpa formulations are part of CSIR-TKDL (Week 7); traditional knowledge documented to prevent bio-piracy – China's TCM practitioners have historically tried to patent Tibetan/Himalayan formulations internationally; India's Sowa-Rigpa recognition + TKDL documentation prevents this

BHARAT MARITIME INSURANCE POOL (BMIP) — P&I INSURANCE PRODUCT LAUNCHED

Ministry: Ministry of Finance / IRDAI / Shipping Ministry

PIB Date: 30th July 2026

Easy Explanation

When a ship causes an oil spill, injures a crew member, or collides with another vessel, who pays? The answer is Protection and Indemnity (P&I) insurance – a specialised form of marine insurance that covers a



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shipowner's liability to third parties (crew members, cargo owners, port authorities, coastal states) for incidents caused by their vessel. P&I insurance is not like regular cargo insurance – it covers liability, not loss of cargo or vessel value. The global P&I market is dominated by 13 mutual insurance clubs based in the UK, Norway, Japan, and the USA – the International Group of P&I Clubs, collectively covering 90% of the world's ocean-going tonnage. Indian ships have historically had to buy P&I insurance from these foreign clubs, paying premiums that flow out of India. When geopolitical tensions arise (Russia sanctions 2022, Red Sea conflict 2024), foreign P&I clubs sometimes refuse to cover certain routes or flag states – leaving Indian ships stranded. The Department of Financial Services (DFS) this week launched India's first domestic Protection and Indemnity insurance product under the Bharat Maritime Insurance Pool (BMIP). The BMIP was created by bringing together India's public sector general insurers (New India Assurance, Oriental Insurance, National Insurance, United India Insurance) and private insurers in a pooling arrangement – each insurer takes a share of the risk, and together they have the capital base to underwrite large maritime liability claims. The product initially covers Indian-flagged vessels and can be extended to foreign vessels calling at Indian ports.

Key Terms:

Term	Definition
BMIP	Bharat Maritime Insurance Pool; pooled arrangement of Indian insurers; launched P&I insurance product July 30; covers shipowner liability to third parties – crew, cargo, pollution, collision
P&I Insurance	Protection and Indemnity insurance; covers shipowner's liability to third parties; distinct from hull insurance (covers ship damage) and cargo insurance (covers cargo loss); essential for international shipping
International Group of P&I Clubs	13 mutual insurance clubs (UK, Norway, Japan, USA) covering 90% of global ocean tonnage; dominated P&I market for 150+ years; BMIP is India's first domestic alternative
Mutual Insurance Club	Insurance arrangement where shipowners pool their risks; each member contributes to a common fund; large claims paid from this fund; profits (if any) returned to members; historically UK-domiciled
Geopolitical insurance risk	Russia sanctions 2022: Western P&I clubs refused to cover Russian oil tankers; Red Sea conflict 2024: clubs added war risk





	surcharges; India's BMIP provides insurance that is not subject to Western geopolitical pressures
IRDAI	Insurance Regulatory and Development Authority of India; regulates all insurance products including BMIP; approved the P&I product structure and pricing; under Ministry of Finance
Pooling arrangement	Multiple insurers share risk proportionally; each takes a percentage of premium and risk; enables coverage of very large claims (oil spill liability can be billions of dollars) that no single Indian insurer could handle alone

Important Points for UPSC:

- India's shipping context: India is world's 2nd largest seafarer supplier (Week 8 brief); has significant merchant fleet (1,400+ vessels); but 95%+ of P&I insurance was bought from foreign clubs; BMIP begins the domestic alternative
- Russia sanctions lesson: When USA/EU sanctioned Russia in 2022, Western P&I clubs stopped covering Russian oil tankers; Russia scrambled to arrange alternative (mostly Russian and Indian insurers); India saw firsthand that dependence on Western insurance creates geopolitical vulnerability
- Red Sea conflict impact: Houthi attacks in Red Sea (2024-2026) caused P&I clubs to add 'war risk' surcharges of 0.2-0.5% of ship value per voyage; for a \$50 million ship, that is \$100,000-250,000 extra per transit; Indian shipping companies bore this cost – BMIP could offer competitive alternatives
- Sagarmala + BMIP: India's Rs 6 lakh crore Sagarmala programme for port-led development (maritime Week 8 brief) needs a complete maritime financial ecosystem – shipbuilding finance, port finance, and now maritime insurance; BMIP completes this ecosystem
- Reinsurance challenge: P&I claims can be enormous (Prestige oil spill 2002: \$1.6 billion; Erika 1999: \$600 million); BMIP needs international reinsurance backing to cover catastrophic claims; early arrangement likely with Munich Re, Swiss Re, or Lloyd's of London
- Crew liability: P&I insurance covers crew injuries, death, and repatriation; India's 2.4 lakh seafarers working on foreign ships currently have P&I coverage through their employers' (foreign) P&I clubs; BMIP could eventually cover Indian seafarers on foreign ships – a direct welfare benefit
- IFSC GIFT City: India's International Financial Services Centre in GIFT City, Gujarat is developing as a maritime finance hub; BMIP's P&I product could eventually be offered from GIFT City, bringing insurance premium income to India rather than UK or Norway.





NBA ACCESS AND BENEFIT SHARING — Rs 24 LAKH TO COTTON FARMERS AND BIODIVERSITY BOARDS

Ministry: Ministry of Environment, Forest and Climate Change / National Biodiversity Authority

PIB Date: 31st July 2026

Easy Explanation

We have covered ABS (Access and Benefit Sharing) in Weeks 4, 6, and 7 of this series. This week brings a specific, concrete implementation that crystallises the abstract concept into a real payment. The National Biodiversity Authority (NBA) released Rs 24 lakh as benefit sharing to farmers, research institutions, and State Biodiversity Boards across 11 cotton-growing states. Here is the story behind this payment: Cotton is India's most important non-food crop — India is the world's largest cotton producer and exporter. The wild relatives of cultivated cotton (like *Gossypium arboreum* and *G. herbaceum* — both indigenous to India) carry genetic traits that commercial cotton has lost over centuries of selective breeding: resistance to specific pests, tolerance to drought, ability to grow in saline soils. When biotechnology companies or seed companies want to use these genetic traits — crossing wild cotton varieties with commercial varieties to develop new pest-resistant or drought-tolerant cotton hybrids — they must, under the Biological Diversity Act 2002 and Nagoya Protocol, seek permission from the NBA and share a portion of the commercial benefits with those who conserved and shared these genetic resources: the farmers in whose fields wild cotton varieties grow, the communities that maintained traditional cotton varieties, and the State Biodiversity Boards that documented them. This week's Rs 24 lakh payment is the NBA's quarterly ABS distribution — a direct cash benefit flowing from India's biodiversity law to the custodians of India's genetic heritage.

Key Terms:

Term	Definition
NBA (National Biodiversity Authority)	Statutory body under Biological Diversity Act 2002; Chennai; regulates access to India's biological resources; approves ABS agreements; distributes benefit sharing payments
ABS (Access and Benefit Sharing)	Mechanism under Nagoya Protocol (CBD): those who access genetic resources for commercial use must share benefits with communities that conserved those resources; cash payments + technology sharing + research collaboration
Nagoya Protocol	International agreement under Convention on Biological Diversity (CBD); adopted 2010 in Nagoya, Japan; operationalises ABS; India ratified 2012; NBA implements Nagoya Protocol nationally



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Gossypium arboreum / herbaceum	Wild cotton species indigenous to India; ancestors of all cultivated cotton; carry traits (pest resistance, drought tolerance, fibre quality) that have been 'lost' in commercial varieties; genetic material sought by seed companies
State Biodiversity Boards (SBBs)	State-level bodies under NBA; maintain Biodiversity Management Committees (BMCs) at local level; maintain People's Biodiversity Registers (PBRs); receive share of ABS payments
People's Biodiversity Register (PBR)	Comprehensive document of local biodiversity – plants, animals, microorganisms – in each village; maintained by BMCs; forms the legal basis for ABS claims by local communities
Biological Diversity Act 2002	India's law implementing CBD; requires prior intimation to NBA for access to biological resources; prior approval for commercial use or research; ABS agreement mandatory for commercial use by foreign entities or Indian companies

Important Points for UPSC:

- Rs 24 lakh in context: Small amount now but growing; NBA has processed ABS agreements worth Rs 10+ crore across all sectors; cotton is the 3rd sector after Neem and turmeric-related ABS; as more seed companies access Indian genetic material, ABS payments will grow significantly
- 11 cotton states: Maharashtra, Gujarat, Telangana, Andhra Pradesh, Karnataka, Madhya Pradesh, Rajasthan, Punjab, Haryana, Odisha, Tamil Nadu – all major cotton producers; farmers and BMCs in these states receive the Rs 24 lakh benefit share
- Cotton genetic resources importance: Bt cotton (genetically modified with *Bacillus thuringiensis* gene) now covers 95% of India's cotton area; but new pests (pink bollworm) are resisting Bt; seed companies urgently need wild cotton's natural pest resistance genes – ABS payments flow from this research access
- Nagoya Protocol IRCC: India uses the ABS Clearing-House (ABSCH) system set up under Nagoya Protocol; internationally recognised compliance certificate (IRCC) issued for each ABS agreement – allows Indian institutions to verify that global researchers have complied with Indian law
- TKDL parallel: TKDL prevents invalid patents; NBA/ABS ensures that even valid use of Indian genetic resources involves benefit sharing; together they protect India's biological heritage from both exploitation (TKDL) and uncompensated use (ABS) – complementary protections





- BMC-PBR system: 2.5 lakh+ BMCs established; 3 lakh+ People's Biodiversity Registers completed; this community-level documentation creates the legal basis for ABS claims and ensures that benefit sharing reaches the actual custodians of biodiversity – farmers and tribal communities
- Global comparison: Brazil's ABS system (strongest in world) paid \$60+ million in benefits since 2015; India's Rs 10 crore cumulative is modest – scaling NBA's ABS enforcement and agreement-signing capacity is needed to realise India's full ABS potential

VANDE BHARAT TRANSPORTS DONOR HEART – SURAT TO AHMEDABAD IN 26 MINUTES

Ministry: Ministry of Railways / Ministry of Health

PIB Date: 31st July 2026

Easy Explanation

On July 31, a donor heart was harvested at a hospital in Surat and needed to reach a transplant patient at a hospital in Ahmedabad – a distance of approximately 265 km. A donor heart can only survive outside the body for 4-6 hours in ideal conditions (stored in a specialised preservation solution at 4 degrees Celsius); beyond that, the organ is not viable for transplant. Road transport would take 2.5-3 hours with a police escort clearing traffic. Helicopter transport was considered but weather conditions were not favourable. The Vande Bharat Express – India's high-speed semi-high speed train connecting Surat to Ahmedabad – was deployed. The heart, in a preservation box, travelled with a medical team in a dedicated compartment. The Vande Bharat covered the Surat-Ahmedabad stretch in 26 minutes – at speeds up to 160 km/h. The heart arrived viable and the transplant surgery was performed successfully. This is not a policy story about a new scheme – it is a demonstration story about existing infrastructure being used innovatively. The Vande Bharat's speed (160 km/h vs road's 80-100 km/h maximum with escort), reliability (no traffic, no weather dependence on clear skies), and network coverage (connects most major cities in Gujarat) make it potentially the most reliable emergency organ transport system India has. The Railways Ministry is now studying a protocol to designate emergency health transport slots on Vande Bharat networks.

Key Terms:

Term	Definition
Vande Bharat Express	India's semi-high-speed train; max speed 160 km/h; designed and built indigenously by ICF Chennai; self-propelled (no separate locomotive); 52 trains operational across India as of 2026



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Organ viability window	Heart: 4-6 hours; Liver: 12-24 hours; Kidney: 24-36 hours; Cornea: 14 days; Bone marrow: 24 hours; tight viability windows make transport speed critical for organ transplant success
Cold ischemia time	Time from organ being removed from donor to blood supply being restored in recipient; includes transport time; shorter cold ischemia = better organ function post-transplant; Vande Bharat minimised this
NOTTO (National Organ & Tissue Transplant Organisation)	India's apex body for organ donation and transplantation coordination; registers donors and recipients; coordinates inter-hospital organ sharing; NOTTO protocol will likely formalise Vande Bharat's role in organ transport
Transplant rate	India performs 20,000+ organ transplants/year; but needs 3 lakh transplants to meet demand; only 1% of needed kidneys, 2% of needed hearts are available; Vande Bharat's speed could improve success rates of available organs
Ahmedabad Surat medical corridor	Gujarat has developed a strong medical-industrial corridor (Surat has major hospitals; Ahmedabad has AIIMS, SAL, and other tertiary hospitals); Vande Bharat connects them in 26 minutes – an organ transport superhighway
Protocol development	Railways Ministry studying emergency health transport slots on Vande Bharat; would designate a specific coach on select trains for emergency medical transport; precedents in Europe (organ transport by train in Netherlands, Germany)

Important Points for UPSC:

- Why Vande Bharat is better than helicopter for organ transport: Helicopter can be grounded by weather, restricted by airspace; requires landing pad at both ends; costs Rs 2-5 lakh per flight; Vande Bharat costs Rs 5,000-10,000, is weather-independent, and has station networks near all major hospitals
- Transplant Act 1994 (THOA): Transplantation of Human Organs Act 1994 governs organ donation in India; mandatory brain death certification; family consent; NOTTO and State Organ Transplant Organisations coordinate logistics – Vande Bharat becomes part of this logistics chain





- 25 Amrit Bharat Stations: PM Modi dedicated 75 Amrit Bharat Stations to the nation this same week; these upgraded stations are being developed with better connectivity to hospitals and medical infrastructure – part of the same healthcare + railways integration story
- Organ donation rates: India's organ donation rate is 0.8 per million population vs Spain's 46 per million; improving transport logistics (so harvested organs can be used reliably) is one factor in building public confidence in organ donation programmes
- Railway emergency protocol: Current protocol requires District Magistrate permission for emergency train stops; proposed new protocol would allow NOTTO-certified organ transport teams to board moving Vande Bharat trains at designated stops within a 30-minute window
- Broader implication: This event demonstrates that Vande Bharat's infrastructure value extends beyond passenger mobility – it is a speed-of-transport resource available to multiple sectors; emergency blood supply, vaccines (cold chain), and disaster relief equipment are other potential applications
- 120 Vande Bharat target: India plans 120 Vande Bharat trains by 2027; as network density increases, the organ-transport utility increases proportionally – more city pairs connected at 160 km/h means more viable organs reaching patients in time

TOY SECTOR TASK FORCE — 5% GLOBAL MARKET SHARE BY 2032

Ministry: Ministry of Commerce & Industry / DPIIT

PIB Date: 27th July 2026

Easy Explanation

In 2014-15, India imported 80% of the toys it consumed – almost entirely from China. Indian toy manufacturers could not compete with Chinese factories' scale, automation, low labour costs, and established supply chains. By 2023-24, this picture had dramatically reversed: India was importing only 20% of its toys and had become a significant toy exporter. This turnaround happened because of a combination of: quality control orders mandating BIS (Bureau of Indian Standards) certification for imported toys (making substandard Chinese toys illegal to import), PLI-type incentives for domestic toy manufacturers, and PM Modi's explicit call in Mann Ki Baat (2020) for Indians to buy Indian toys (vocal for local). India's toy exports grew by 89.1% in FY2025-26 – the fastest growth rate of any major export category this year. Union Minister Piyush Goyal this week announced a Task Force specifically to support the toy sector, with a target of capturing 5% of global toy market share by 2032, up from India's current ~1.5%. The global toy market is \$110 billion annually; 5% would mean \$5.5 billion in exports plus domestic production for India's 1.4 billion population. The Task Force will focus on: design capability (India has manufacturing skills but lacks toy design expertise); IPR for toy characters (creating Indian toy IP that can be licenced globally like Lego or Barbie);



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quality certification infrastructure (more BIS labs for toy testing); and cluster development (Rajkot, Bengaluru, Kanchipuram toy clusters).

Key Terms:

Term	Definition
Toy sector transformation	India's toy import share: 80% (2014) → 20% (2024); exports grew 89.1% in FY2025-26; PLI + BIS quality orders + Vocal for Local + cluster development drove this reversal
BIS toy certification	Bureau of Indian Standards mandatory certification for all toys (imported and domestic); IS 9873 series of standards; testing for safety (sharp edges, small parts, toxic paints, flammability); quality control order blocked substandard Chinese imports
Task Force mandate	5% global market share by 2032; focus areas: design capability, toy IP creation, BIS testing infrastructure, toy cluster development, export market diversification
Toy clusters	Rajkot (Gujarat): wooden and plastic toys; Bengaluru: educational and electronic toys; Kanchipuram (TN): traditional cloth dolls and wooden toys; Channapatna (Karnataka): UNESCO-recognised traditional lacquerware toys
Channapatna toys	Karnataka's traditional lacquered wooden toys; used for 800+ years; made with aale wood and natural dyes; GI tagged; KVIC promotes them; UNESCO listed as intangible cultural heritage – premium export potential
\$110 billion global toy market	USA, China, Japan, Germany are largest markets; China dominates manufacturing; India's target: \$5.5 billion exports + \$10-15 billion domestic by 2032; total India toy industry target ~\$20 billion
PLI for toys	Rs 1,000 crore PLI-type incentive (Scheme for Promotion of Toy Sector 2021); covers both traditional and electronic toys; incentivises companies investing >Rs 10 crore in toy manufacturing

Important Points for UPSC:





- 89.1% export growth: India's fastest-growing export category in FY2025-26; from \$150 million (2014-15) to \$326 million (2023-24) to approximately \$620 million (2025-26) – still modest but trajectory is transformational
- Design gap: China wins in toy design because it has a massive design ecosystem (CAD specialists, product designers, materials engineers); India's toy industry is still largely copying Chinese designs; Task Force specifically creates a National Toy Design Institute as its first recommendation
- IPR for toy characters: Lego earns more from licensing (movies, games, theme parks) than from selling plastic bricks; Barbie's IP is worth more than the physical dolls; India must create toy characters with global cultural appeal that can be licenced – Task Force includes an 'Indian IP creation' mandate
- Vocal for Local impact: PM Modi's 2020 Mann Ki Baat call for Indian toys was credited with triggering the consumer preference shift; combined with the BIS quality order (which removed substandard Chinese toys from shelves), Indian toys found shelf space they couldn't before
- Traditional toys revival: Kondapalli (AP), Etikoppaka (AP), Channapatna (Karnataka), Kinhall (Karnataka), Varanasi (UP) traditional toy clusters are being revived under Artisan clusters + GI tag combination; these have export premium potential in European and North American markets seeking 'authentic, sustainable' toys
- Commonwealth Games sports goods: India is also reviving sports goods manufacturing in Jalandhar (Punjab); sports goods are technically a sub-category of 'toys' in trade classification; 89.1% toy export growth includes sports goods growth – broad sectoral revival
- Toy industry employment: India's toy industry employs 28 lakh people (direct + indirect); if 5% global share is achieved by 2032, employment could reach 50 lakh – significant job creation in labour-intensive manufacturing

INDIA'S FIGHT TO COMBAT HEPATITIS — PIB BACKGROUNDER, NVHCP 8 YEARS

Ministry: Ministry of Health and Family Welfare / NVHCP

PIB Date: 28th July 2026

Easy Explanation

World Hepatitis Day is July 28 – chosen to mark the birthday of Nobel Prize-winning virologist Baruch Blumberg who discovered Hepatitis B. This year marks the 8th anniversary of India's National Viral Hepatitis Control Programme (NVHCP), launched in 2018. Hepatitis literally means inflammation of the liver. The viral hepatitis types A, B, C, D, and E are caused by five distinct viruses with very different transmission routes, clinical courses, and outcomes. Hepatitis A and E are transmitted through contaminated food and water –



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they cause acute illness but rarely chronic disease. Hepatitis B and C are the silent killers: transmitted through blood (contaminated needles, blood transfusions, mother to child), they can cause chronic infection lasting decades, leading to cirrhosis (liver scarring) and hepatocellular carcinoma (liver cancer). India has an estimated 4 crore people with chronic Hepatitis B and 1 crore with chronic Hepatitis C – making India one of the world's largest burden countries. WHO's target: eliminate viral hepatitis as a public health threat by 2030 (reduce new infections by 90% and mortality by 65%). The NVHCP's 8-year report card: Hepatitis B vaccination integrated into Universal Immunisation Programme (UIP) in 2002; Hepatitis C treatment (Direct-Acting Antivirals, DAAs) provided free at government facilities since 2018; 1.5 crore people tested; 5 lakh+ Hepatitis C patients treated; new Hepatitis C infections declining. But gaps remain: only 20% of Hepatitis B infected people know their status; treatment coverage for Hepatitis B is barely 10%.

Key Terms:

Term	Definition
NVHCP	National Viral Hepatitis Control Programme; launched 2018; covers HBV + HCV testing, treatment, and vaccination; target: WHO 2030 hepatitis elimination goals
Hepatitis B (HBV)	DNA virus; blood-borne + sexual + mother-to-child transmission; chronic infection in 5-10% of adults, 90% of infants infected at birth; vaccine available (3-dose schedule, birth + 6 + 14 weeks in UIP)
Hepatitis C (HCV)	RNA virus; primarily blood-borne (sharing needles, contaminated equipment); no vaccine; DAAs (Direct-Acting Antivirals) cure 95%+ in 12 weeks; government provides free DAA treatment under NVHCP
DAAs (Direct-Acting Antivirals)	Medicines that directly target HCV replication; cure rates 95%+; 12-week treatment; previously Hepatitis C was untreatable in developing countries; cost has fallen from \$80,000/course (2014) to Rs 15,000 (2026) due to India's generic manufacturing
Cirrhosis	Chronic liver disease where normal liver tissue is replaced by scar tissue (fibrosis); caused by long-term alcohol use, viral hepatitis, fatty liver disease; leads to liver failure and liver cancer if untreated
Hepatocellular Carcinoma (HCC)	Primary liver cancer; Hepatitis B is the #1 cause globally; Hepatitis C is #2; India has 25,000+ new HCC cases/year; preventing





	HBV/HCV infection through NVHCP prevents HCC – vaccination is cancer prevention
WHO 2030 targets	Eliminate viral hepatitis as public health threat: reduce new HBV/HCV infections by 90%, reduce hepatitis-related deaths by 65% from 2015 baseline; India is a signatory to this WHO target

Important Points for UPSC:

- India's hepatitis burden: 4 crore chronic HBV (3rd largest globally after China, Nigeria); 1 crore chronic HCV; 1.5 lakh deaths annually from HBV+HCV-related liver disease; HBV causes 50%+ of India's liver cancer cases
- HBV vaccination success: India added HBV vaccine to UIP in 2002 (birth dose + 3-dose series); immunisation coverage has reached 85-90%; a child born today in India has near-complete protection against HBV – NVHCP's most visible success
- HCV treatment revolution: India's generic pharma industry (Natco, Cipla, Mylan) reverse-engineered Sofosbuvir (the key DAA) – reducing cost from \$80,000 to Rs 15,000 per 12-week cure; this is India's 'pharmacy of the world' impact on its own citizens
- Awareness gap: Only 20% of Hepatitis B patients know they are infected (HBV is often asymptomatic for decades); only 30% of Hepatitis C patients know; NVHCP's testing scale-up (1.5 crore tested) must accelerate to reach the 90% reduction target
- Injection safety: 40-60% of India's Hepatitis C burden is from unsafe injection practices (reuse of syringes in small clinics); Injection Safety Programme under NVHCP mandates single-use syringes; also addresses tattooing and barbering as HCV transmission routes
- Drug user link: People who inject drugs (PWID) have Hepatitis C prevalence of 40-60%; Harm Reduction Programmes (needle exchange, OST – opioid substitution therapy) are essential for HCV elimination in this population; NVHCP includes harm reduction components
- Liver transplant demand: India performs 3,000+ liver transplants/year but needs 30,000+; most liver failures are HBV/HCV-related; eliminating viral hepatitis will reduce liver transplant demand by 50-60% – NVHCP is also a healthcare cost containment strategy

INDIA LEADS THE WILDERNESS – TIGER CONSERVATION PIB BACKGROUND, GLOBAL TIGER DAY

Ministry: Ministry of Environment, Forest and Climate Change / NTCA

PIB Date: 29th July 2026



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Easy Explanation

July 29 is Global Tiger Day – established in 2010 at the Saint Petersburg Tiger Summit where 13 tiger range countries (Tx2 nations) committed to doubling wild tiger populations by 2022. India was the star performer: in 2006, India had 1,411 tigers; by 2022, that number had grown to 3,682. India not only met the Tx2 doubling target but exceeded it – 3,682 is 2.6 times the 2006 population. India's success – which now houses 75%+ of the world's wild tiger population – is the result of 50+ years of persistent conservation policy built on three pillars: habitat, prey, and protection from poaching. Project Tiger, launched in 1973 by PM Indira Gandhi as one of the world's first major wildlife conservation programmes, created a system of Tiger Reserves with strictly protected core zones (where no human settlement or activity is permitted) and buffer zones (where some traditional activities are allowed but tourism and commercial exploitation are strictly regulated). The system has been continuously refined: NTCA (National Tiger Conservation Authority) was created in 2005 with statutory powers; camera traps (photographic identification of individual tigers) replaced pugmark-based counting (which was inaccurate); M-STRIPES (Monitoring System for Tigers – Intensive Protection and Ecological Status) was developed for real-time field monitoring; and compensation schemes for livestock loss reduced community hostility toward tigers. This week's PIB backgrounder also reveals: discussions on tiger reintroduction to new reserves (Alwar workshop, Week 5 brief), plans for a 56th tiger reserve (possibly in Chhattisgarh), and India's proposal to host the next Global Tiger Forum.

Key Terms:

Term	Definition
Project Tiger	Launched 1973 by PM Indira Gandhi; world's first major tiger conservation programme; 55 Tiger Reserves in 18 states; covers 2.97% of India's land area; budget Rs 1,000+ crore/year
Tx2 (Tiger Doubles by 2022)	2010 Saint Petersburg commitment by 13 tiger range countries to double wild tiger populations by 2022; India exceeded target (1,411 in 2010 to 3,682 in 2022 = 2.6x increase); Russia, Nepal also succeeded
Tiger Reserve structure	Core zone (Critical Tiger Habitat): strictly protected, no human entry without permission; Buffer zone: sustainable human activity permitted; Peripheral zone: coexistence with human settlements
M-STRIPES	Monitoring System for Tigers – Intensive Protection and Ecological Status; mobile app used by field staff; GPS-tagged patrol data; camera trap data integration; replaces paper-based monitoring





Camera trap census	Individual tigers identified by unique stripe patterns (like human fingerprints); camera traps at water holes and trails; India's 2022 census used 26,000+ camera stations across 90 landscapes – world's most rigorous wildlife survey
NTCA	National Tiger Conservation Authority; statutory body under WPA 1972 Amendment 2006; chaired by Environment Minister; manages Project Tiger; can de-notify tiger reserves; allocates Conservation Assurance Tiger Standards (CA TS) funds
Global Tiger Forum (GTF)	Intergovernmental body for tiger conservation; India is a founding member; meets every 4 years; India proposed hosting the next GTF – reflecting leadership position with 75%+ of world's wild tigers

Important Points for UPSC:

- Historical trajectory: Pre-1900: 1 lakh tigers in India → 1947: 40,000 tigers → 1972: 1,827 tigers (hunted to near-extinction) → 1973 Project Tiger → 2006: 1,411 (census, pre-camera trap method – likely undercounted) → 2022: 3,682 (camera trap census, accurate) – 50 years of consistent conservation showing results
- Camera trap methodology: 26,000+ camera trap stations; individual tiger identification by stripe pattern; 2022 census surveyed 90 tiger landscapes across India; took 3 years to complete; published in Wildlife Protection Research – world's largest wildlife survey
- 55 Tiger Reserves: Distributed across 18 states; largest: Nagarjunasagar-Srisailem (AP, 3,568 sq km); most tigers: Corbett (250+, Uttarakhand); newest additions: Guru Ghasidas-Tamor Pingla (Chhattisgarh, 2022), Ramgarh Vishdhari (Rajasthan, 2022)
- Prey base recovery: Tiger recovery requires prey recovery; India's chital (spotted deer), sambar, gaur populations have also recovered significantly; protected areas that banned hunting since 1972 (WPA) have allowed prey populations to rebound – tigers followed
- Community coexistence: Rs 10 lakh ex-gratia for human death from tiger attack; Rs 2-25 lakh for livestock kill; Village Relocation from Core Zones (voluntary, with compensation package) has removed human-tiger conflict hotspots – 1,500+ families voluntarily relocated
- Tiger corridor network: India has 32 identified tiger corridors connecting reserves; connectivity between Corbett-Rajaji, Kanha-Pench, Nagarhole-Bandipur is critical to prevent genetic isolation; highway underpasses and elevated sections protect corridors from fragmentation





- 56th Tiger Reserve proposal: Chhattisgarh government proposed Guru Ghasidas-Tamor Pingla (already a National Park) to be upgraded; would connect existing tiger populations in Kanha and Achanakmar – strategic corridor linkage

INDIA AS A TOURISM HUB – PIB BACKGROUNDER

Ministry: Ministry of Tourism

PIB Date: 31st July 2026

Easy Explanation

Tourism is India's fastest route to foreign exchange earnings, employment creation (especially in rural and heritage areas), and soft power projection. But India's tourism performance has been strikingly below potential. India received 10.9 million foreign tourist arrivals (FTAs) in 2023 – compared to France (100 million), Spain (85 million), and Thailand (28 million). India has arguably the world's most diverse tourism offering: from Himalayan adventure (Ladakh, Sikkim, Uttarakhand) to beach paradise (Goa, Kerala, Andaman, Lakshadweep), ancient heritage (350+ UNESCO-nominated sites, 43 inscribed), wildlife (55 tiger reserves, 106 national parks, 571 sanctuaries), spiritual circuits (Char Dham, Buddhist Circuit, Jain pilgrimage routes), and medical tourism (growing rapidly post-COVID). The gap between India's tourism potential and performance is what the PIB backgrounder addresses. The Viksit Bharat 2047 tourism vision targets: 150 million FTAs by 2047 (15x current), making tourism India's largest foreign exchange earner (currently 5th behind software, remittances, merchandise exports, FDI). The week's PIB also revealed: Ministry of Tourism signed MoUs with Air India (this week) and IndiGo (this week) to co-promote India internationally; the 'Incredible India' brand is being redesigned for a younger, adventure-seeking global traveller; and a National Tourism Policy 2025 is being finalised focusing on MICE (Meetings, Incentives, Conferences, Exhibitions), medical tourism, and cruise tourism.

Key Terms:

Term	Definition
FTA (Foreign Tourist Arrivals)	International visitors coming to India; 10.9 million in 2023; target 150 million by 2047; India's FTA is far below potential given its tourism assets
MICE Tourism	Meetings, Incentives, Conferences, Exhibitions; high-value business tourism; India is building convention centres in Delhi (IICC Dwarka), Mumbai, Hyderabad (HICC), Bengaluru (BIEC); MICE visitors spend 3-5x more than leisure tourists



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Medical Tourism	Visiting a country for healthcare; India is world's 3rd largest medical tourism destination (\$9 billion); AIIMS, Medanta, Apollo, Fortis attract patients from 150+ countries; cost is 60-80% lower than USA/UK for equivalent procedures
Incredible India	India's tourism brand since 2002; being redesigned; new positioning emphasises adventure, wellness, heritage, and sustainable tourism for younger global travellers
Cruise Tourism	India received 800,000 cruise passengers/year at Mumbai, Cochin, Goa, Chennai; target 4 million by 2030; infrastructure investment in cruise terminals; Vizhinjam (Kerala) deep-water port will be India's first dedicated cruise hub
Air India + IndiGo MoUs	Both airlines signed MoUs with Ministry of Tourism this week; airlines will promote India as a destination in their international marketing; reciprocally, Tourism Ministry promotes direct connectivity to underserved tourist destinations
Viksit Bharat 2047 tourism target	150 million FTAs by 2047; \$300 billion tourism GDP by 2047; tourism as India's largest employer (target 10% of GDP vs current 5%); requires massive infrastructure and visa policy reform

Important Points for UPSC:

- Why India underperforms: Infrastructure gaps (poor roads to many heritage sites, limited accommodation in tier-2 cities); visa process complexity (e-Visa exists but can be improved); poor marketing internationally (Incredible India underfunded vs France's Atout France); safety perceptions; cleanliness concerns at many sites
- FTA comparison: France (100M FTAs, \$74B revenue), Spain (85M FTAs, \$80B revenue), India (10.9M FTAs, \$20B revenue) – India earns \$1,835 per tourist vs Spain's \$941; India attracts lower volume but higher-spending visitors – niche premium positioning is realistic
- Spiritual tourism potential: 300 million domestic pilgrims/year (Char Dham, Shirdi, Vaishno Devi, Tirupati, Bodh Gaya, etc.); Varanasi receives 7+ crore domestic visitors/year; Kashi Vishwanath Corridor, Mahakal Corridor upgrades improving infrastructure at key spiritual sites
- Sarnath UNESCO (Art 1 this week): Sarnath's inscription directly boosts Buddhist Circuit tourism; Ministry of Tourism is developing Buddhist Circuit (Lumbini-Bodh Gaya-Sarnath-Kushinagar) as India's flagship international tourism product targeting 10 Asian countries





- Medical tourism growth: India's medical tourism grew 40% in 2022-23; traditional medicine (Ayurveda, Panchakarma) tourism is fastest-growing segment; Kerala's Ayurveda tourism alone attracts 5 lakh international visitors/year; AYUSH-branded wellness tourism is a \$5 billion opportunity
- Tourism Employment: India's tourism sector directly employs 87 lakh people; indirectly supports 3+ crore; every \$1 billion in tourism GDP creates 75,000 jobs (vs \$1 billion manufacturing = 55,000 jobs); tourism is India's most labour-intensive formal sector activity
- National Tourism Policy 2025 (being finalised): Key proposals – e-Visa expansion to 170+ countries; 24-hour e-Visa processing; dedicated Tourism Police in top 50 destinations; Tourism Infrastructure Development Fund (TIDF); rating and accreditation of guides

PM VIDYALAXMI SCHEME — COLLATERAL-FREE HIGHER EDUCATION LOANS

Ministry: Ministry of Education / Department of Higher Education

PIB Date: 29th July 2026

Easy Explanation

Getting into a good college in India is competitive enough. But for students from middle-class and lower-middle-class families – who do not have property to offer as collateral – getting a bank loan to pay for it adds another hurdle that students from wealthier families simply don't face. A student whose parents own a house can use it as mortgage security for an education loan. A student whose family rents their home, or whose parents are farmers with only agricultural land (which banks often refuse as collateral), has no such option. PM Vidyalaxmi – a PIB backgrounder detailing the scheme was released this week – is the government's answer. Launched in 2024 under PM Modi's announcement, PM Vidyalaxmi provides: collateral-free education loans up to Rs 10 lakh for all students admitted to Quality Higher Education Institutions (QHEIs – a government-designated list of top-ranked institutions including IITs, NITs, IIMs, AIIMS, and other NIRF-ranked institutions); 3% interest subvention for loans above Rs 7.5 lakh for students with family income below Rs 8 lakh per year; and a central credit guarantee (government guarantees the loan to the bank if the student defaults) – removing the bank's risk and incentivising them to lend to students without collateral. The scheme uses a unified portal (vidyalaxmi.gov.in) where students apply once and receive offers from multiple banks – a marketplace approach rather than going bank-by-bank. This week's PIB backgrounder gives the implementation status: 12 lakh applications processed; Rs 8,500 crore sanctioned; 38 banks participating.

Key Terms:

Term	Definition
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PM Vidyalaxmi	Collateral-free education loan scheme; up to Rs 10 lakh; for students at Quality Higher Education Institutions; 3% interest subvention for income <Rs 8 lakh; central credit guarantee
QHEI (Quality Higher Education Institutions)	Government-designated list of top institutions eligible for Vidyalaxmi; includes all IITs, NITs, IIMs, AIIMS, top NIRF-ranked private colleges; currently ~860 institutions designated
NIRF (National Institutional Ranking Framework)	India's national ranking system for HEIs; Ministry of Education; 5 parameters: teaching/learning/resources, research, outreach, perception, graduation outcomes; ranks top 200 institutions annually across 14 categories
Central Credit Guarantee	Government guarantees repayment to bank if borrower defaults; removes credit risk from bank; National Credit Guarantee Trustee Company (NCGTC) manages this for education loans under Vidyalaxmi
3% interest subvention	For loans above Rs 7.5 lakh; family income <Rs 8 lakh; bank charges market rate (10-12%); government pays 3% on student's behalf during the moratorium period (study + 1 year after graduation)
Vidyalaxmi portal	Single application portal; student applies once; multiple banks offer loan products; student compares and selects; reduces time from weeks to days; integrates with DigiLocker for document submission
Previous schemes	CSIS (Central Sector Interest Subsidy): similar but limited to Rs 7.5 lakh; Vidyalaxmi extends collateral-free to Rs 10 lakh and adds the credit guarantee that banks needed to lend without collateral

Important Points for UPSC:

- Education loan gap: Only 35 lakh education loans outstanding in India (vs 2 crore students in higher education annually); most students either self-fund or drop out; collateral requirement is the biggest barrier – PM Vidyalaxmi removes it for top-institution students
- 12 lakh applications processed: Implementation status shows strong demand; Rs 8,500 crore sanctioned (average Rs 70,833 per approved loan); 38 banks participating including SBI, Bank of Baroda, HDFC, Axis; private banks' participation is a new development – previously private banks were reluctant to offer collateral-free education loans





- IIT-NIT context: IIT annual fee is Rs 2-8 lakh; NIT is Rs 1-2 lakh; the students who cannot pay these fees without loans are precisely the meritorious students from non-wealthy families who India cannot afford to lose to financial constraints – PM Vidyalaxmi is a meritocracy-protection scheme
- NIRF ranking link: QHEI designation is NIRF-rank linked; as NIRF rankings improve (NIRF 2026 released this week), more institutions become eligible for Vidyalaxmi; private colleges have strong incentive to improve NIRF rankings – Vidyalaxmi creates demand-side pressure for quality improvement
- Gender dimension: Female students from conservative families face dual barriers – family reluctance to send daughters to distant colleges AND loan refusal without collateral; Vidyalaxmi's collateral-free guarantee specifically enables female higher education – Ministry data shows 40%+ applicants are women
- Repayment moratorium: Loan repayment begins 12 months after getting a job; students cannot repay during study period; moratorium is critical for ensuring the scheme actually helps students complete education rather than dropping out to repay loans
- NEP 2020 link: NEP 2020 targets Gross Enrolment Ratio (GER) in higher education reaching 50% by 2035 (currently 28%); PM Vidyalaxmi is the financial access instrument that enables this expansion – GER cannot reach 50% without solving the education loan accessibility problem

START-UP VILLAGE ENTREPRENEURSHIP PROGRAMME (SVEP) – RURAL MICRO-ENTERPRISE SUPPORT

Ministry: Ministry of Rural Development / DAY-NRLM

PIB Date: 25th July 2026

Easy Explanation

India's rural economy has millions of micro-enterprises: a woman making pickles and selling them in the local market, a man repairing motorcycles in his village, a family running a small grocery shop, an artisan making bamboo furniture. These are not 'startups' in the Silicon Valley sense – they are survival enterprises, often informal, under-capitalised, and unable to grow because they lack business skills, market linkages, and access to finance. The Start-up Village Entrepreneurship Programme (SVEP) – a PIB backgrounder released this week – is Deendayal Antyodaya Yojana – National Rural Livelihood Mission's (DAY-NRLM) specific programme to systematically support these rural micro-enterprises. SVEP works through Community Resource Persons for Enterprise Promotion (CRPEPs) – trained local entrepreneurs (typically SHG members themselves) who become enterprise advisors in their own villages, identifying aspiring entrepreneurs, assessing their business ideas, facilitating bank linkages for working capital, and providing post-start-up handholding for 6-12 months. This peer-to-peer support model is far more effective than government-designed one-size-fits-all training



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because CRPEPs understand the local economy, speak the local language, and are trusted community members. The PIB backgrounder reveals: SVEP has been implemented in 246 blocks across 16 states; 5 lakh+ rural enterprises supported; 1.5 lakh+ new enterprises started; average enterprise income increased by 40-60% after SVEP support.

Key Terms:

Term	Definition
SVEP	Start-up Village Entrepreneurship Programme; component of DAY-NRLM; supports rural micro-enterprises through trained CRPEPs; implemented in 246 blocks across 16 states
DAY-NRLM	Deendayal Antyodaya Yojana – National Rural Livelihood Mission; flagship rural livelihoods programme; Rs 15,000+ crore budget; covers SHG formation, bank linkage, livelihoods, SVEP, Lakhpati Didi
CRPEP	Community Resource Person for Enterprise Promotion; trained SHG member who becomes enterprise advisor in own village; identifies aspiring entrepreneurs, assesses business ideas, facilitates finance, provides post-start-up support
Block Resource Centre (BRC)	District/block-level support structure under DAY-NRLM; 246 BRCs under SVEP; provide training to CRPEPs, technical support for enterprise plans, bank linkage facilitation
Lakhpati Didi	DAY-NRLM's target: SHG women earning Rs 1 lakh/year or more; SVEP is a key instrument for creating Lakhpati Didis by helping them grow micro-enterprises beyond subsistence; 1 crore Lakhpati Didi target by 2025 (partially met)
Enterprise Finance under SVEP	SVEP provides revolving fund (Rs 15,000/enterprise initial) from Community Investment Fund (CIF); bank loans facilitated through SHG-bank linkage; MFI loans in some states; average loan size Rs 50,000-1,50,000
PMEGP comparison	PM Employment Generation Programme (PMEGP): for larger enterprises (Rs 25-50 lakh loans, 15-35% subsidy); SVEP: for micro-enterprises (<Rs 2 lakh); SVEP and PMEGP form India's rural enterprise support continuum

Important Points for UPSC:



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- SVEP's peer-to-peer model: CRPEPs are paid Rs 5,000-7,000/month performance-based stipend; they handle 15-20 enterprises each; 246 blocks x average 50 CRPEPs = 12,300 CRPEPs nationally; each CRPEP is an enterprise advisor, credit facilitator, and local market connector
- 246 blocks coverage: SVEP is not yet national (DAY-NRLM has 6,600+ blocks total); 246 blocks is a pilot-to-scale phase; evaluation shows SVEP blocks have 35-40% higher enterprise formation rates than comparable non-SVEP blocks – evidence for national scale-up
- Enterprise types supported: Agri-processing (value addition to farm produce), manufacturing (pottery, weaving, bamboo), services (mobile repair, tailoring, driving), trade (small shops, input dealers); SVEP is sector-neutral – any viable local enterprise gets support
- Post-Covid revival: SVEP was critical in helping SHG women restart livelihood enterprises that COVID-19 disrupted; the CRPEP network continued operating through COVID because they are village-based and did not face urban-rural migration disruption
- LokOS connection: LokOS (Week 6 brief) provides the digital market access layer; SVEP provides the enterprise support layer; together, a SVEP-supported rural entrepreneur can now sell on ONDC through LokOS – the two programmes are designed to be complementary
- Connects to Bharat Tex 2026: Rural women artisans supported by SVEP in handloom and crafts were showcased at Bharat Tex 2026 under 'Lakhpatti Didis'; SVEP is the production support programme, Bharat Tex is the market access platform for the same women
- Scale-up plan: SVEP to be expanded from 246 to 1,000+ blocks in the next phase; CRPEPs to be professionally certified through NCVET (National Council for Vocational Education and Training) as Enterprise Development Facilitators – formal vocational credential

THE MAKING OF A SPORTING NATION – PIB BACKGROUNDER, CWG 2026 CONTEXT

Ministry: Ministry of Youth Affairs & Sports

PIB Date: 28th July 2026

Easy Explanation

India at Commonwealth Games 2026 in Glasgow has been performing exceptionally – gold medals in weightlifting (Mirabai Chanu, Sharmila), silver in high jump (Sarvesh Kushare), gold and silver in Para athletics – reflecting the results of India's systematic sports investment over the last decade. The PIB backgrounder 'The Making of a Sporting Nation' released this week traces how India's sports ecosystem has been transformed. In 2014, India won 64 medals at CWG (including 15 gold). By 2026, the trajectory shows continued strong performance. The transformation has three pillars. First, Khelo India (launched 2018) – a



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national programme identifying young athletes at grassroots level through Khelo India School Games, Khelo India University Games, Khelo India Winter Games, and Khelo India Para Games; providing Rs 5 lakh/year scholarship to 2,000+ young athletes; and developing Khelo India Centres (KICs) and Khelo India State Centres of Excellence (KISCEs) across all states. Second, TOPS (Target Olympic Podium Scheme) – personalized support for top athletes targeting Olympic medals: custom coaching, foreign training exposure, sports science support (physiotherapy, psychology, nutrition), and up to Rs 50,000/month living allowance. Third, the revamped SAI (Sports Authority of India) – upgraded SAI National Centres of Excellence (SNICE) with world-class training infrastructure. Cabinet this week approved the revamped Khelo India Scheme with enhanced outlay – signalling continued commitment.

Key Terms:

Term	Definition
Khelo India	National sports programme; launched 2018; Khelo India School/University/Winter/Para Games; 2,000+ annual scholarships; Khelo India Centres for grassroots; Rs 6,000 crore enhanced outlay under revamped scheme
TOPS	Target Olympic Podium Scheme; elite athlete support programme; personalized coaching, foreign exposure, sports science support; Rs 50,000/month stipend; targets Olympic and Paralympic medals; Mission Olympic Cell oversees
SAI (Sports Authority of India)	Government body managing national sports infrastructure; 24 SAI National Centres of Excellence; coaches, training facilities, hostels for elite athletes; undergoing transformation into world-class training ecosystem
Khelo India Centre (KIC)	Grassroots sports infrastructure at district/block level; equipment, coaching, identification of talented children; 1,000+ KICs across India; feeds talent to higher levels of the sports pyramid
National Sports Federations (NSFs)	Governing bodies for each sport (Athletics Federation of India, Boxing Federation, Weightlifting Federation etc.); Cabinet approved enhanced Assistance to NSFs (ANSFs) this week; NSF governance has been a recurring problem
CWG 2026 performance	Glasgow, Scotland; India performing well – Mirabai Chanu gold (weightlifting), Sharmila gold (shot put F57), Sarvesh Kushare silver (high jump), Para athletes gold in 100m T47; reflects TOPS investment





Sports ecosystem pyramid

Base: Khelo India (grassroots) → Middle: KISCEs and SAI centres (elite junior) → Top: TOPS (elite senior Olympic/Paralympic) → Capstone: NSF-organised international competition; structured pipeline being built

Important Points for UPSC:

- India's Olympic trajectory: 2000 Sydney – 1 medal (Karnam Malleswari bronze); 2012 London – 6 medals; 2020 Tokyo – 7 medals (best ever); 2024 Paris – 6 medals; not a linear improvement but Khelo India is building the pipeline that should show results at 2028 LA Olympics
- Khelo India scholarship impact: 2,000+ athletes receiving Rs 5 lakh/year scholarship; covers training, equipment, diet, physiotherapy; athletes can train without financial distraction; early evidence shows scholarship athletes performing better at national championships
- Neeraj Chopra model: Neeraj's Olympic gold (Tokyo 2020) was enabled by TOPS support (foreign training with German coach Klaus Bartonietz, best-quality javelins, biomechanics analysis at German facilities); government spent Rs 70 lakh on Neeraj's preparation – returned with India's first-ever athletics Olympic gold
- NSF governance reforms: Cabinet's enhanced ANFS comes with governance conditions – NSFs must implement electoral reforms, age limits for office bearers, anti-doping compliance; Sports Code 2011 is being strengthened; a recurring UPSC theme
- Para sports integration: Khelo India Para Games (since 2023) is India's first national multi-sport Para Games; Para athletes now eligible for TOPS support; Sharmila's gold at Glasgow Para Commonwealth shows early results of Para sports integration
- CWG 2026 Weightlifting: India has traditionally dominated CWG weightlifting; Mirabai Chanu is India's most decorated weightlifter (CWG gold, Olympic silver, World Championship medals); her continued success at 31 years reflects the long-term athlete support that TOPS provides
- India LA 2028 ambition: India's target is 10+ medals at LA 2028 Olympics; realistic for athletics (Neeraj + emerging throwers), wrestling, badminton, shooting, boxing, weightlifting; Khelo India 2018 graduates will be 18-22 in 2028 – the pipeline athletes

PREVENTION OF INSULTS TO NATIONAL HONOUR (AMENDMENT)

BILL 2026

Ministry: Ministry of Home Affairs

PIB Date: 30th July 2026

Easy Explanation



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The Prevention of Insults to National Honour Act, 1971 is one of India's less-discussed but constitutionally significant laws. It criminalises: burning, mutilating, defacing, or otherwise showing disrespect to the National Flag; using the National Anthem in a derogatory manner or singing it in a manner that interferes with the rendition; and showing disrespect to the Constitution of India. The Act was originally passed in 1971 to consolidate laws against insults to national symbols – previously scattered across different statutes. The 1971 Act prescribed punishments of up to 3 years imprisonment for these offences. The Prevention of Insults to National Honour (Amendment) Bill, 2026 – a PIB backgrounder released this week alongside a Lok Sabha passage – makes three significant changes: First, it expands the definition of 'disrespect to the National Flag' to explicitly include digital acts – posting defaced images of the flag on social media, using altered flag imagery in digital content, and sharing manipulated flag images. Second, it increases the maximum punishment from 3 years to 7 years imprisonment for repeat offenders or organised acts of disrespect. Third, it creates a fast-track adjudication mechanism for flag and anthem disrespect cases – dedicated sessions courts that must conclude trials within 1 year. The Amendment reflects the reality that most acts of disrespect to national symbols now occur in digital spaces – the 1971 Act was drafted in an era of physical protests and could not have anticipated social media-era violations.

Key Terms:

Term	Definition
Prevention of Insults to National Honour Act 1971	Criminalises disrespect to National Flag, National Anthem, and Constitution of India; maximum punishment 3 years; 2026 Amendment increases to 7 years for repeat/organised offenders
National Flag Code of India 2002	Governs proper use and display of the National Flag; part III covers rules for private citizens; Flag Code was amended in 2022 to allow Har Ghar Tiranga (machine-made flags permitted)
Har Ghar Tiranga	PM Modi's initiative (August 2022); every household to display the National Flag during Independence Week; amended Flag Code to permit machine-made and polyester flags – previously only khadi flags were permitted
Digital acts of disrespect	2026 Amendment explicitly covers: defaced flag images on social media, manipulated flag imagery in digital content, using flag as background for objectionable content; addresses gap in 1971 Act
7-year punishment (repeat offenders)	Amendment creates tiered punishment: first offence – up to 3 years; repeat offender or organised group act – up to 7 years;



	organised conspiracy to insult national symbols treated as serious offence
Fast-track courts	Dedicated sessions courts must conclude flag/anthem disrespect cases within 1 year; same week, PM announced fast-track courts for paper leak cases – pattern of using fast-track courts as enforcement tool
Sedition law vs this Act	Sedition (Section 124A IPC, now BNS Section 152) is different – it criminalises excitement of disaffection against government; Prevention of Insults Act is narrower – specifically national symbols; students often confuse the two

Important Points for UPSC:

- Article 19(1)(a) vs this Act: Freedom of speech (Art 19(1)(a)) is a fundamental right; this Act restricts it; but Art 19(2) allows reasonable restrictions on free speech in the interest of public order, decency, and sovereignty – Prevention of Insults Act falls within Art 19(2) and has been upheld by courts
- National Flag Code amendments: Flag Code 2002 was significantly amended in 2022 (Har Ghar Tiranga); key 2022 amendments – machine-made flags permitted, polyester flags permitted, flags can be displayed day and night (previously only sunrise to sunset); Amendment Bill 2026 works alongside Flag Code
- Digital jurisdiction: Expanding the Act to cover social media acts raises complex jurisdiction questions – a user in Pakistan posting a defaced Indian flag image: can India prosecute? The Amendment focuses on acts done 'in India' and by Indian nationals – narrow jurisdictional scope
- Constitution's inclusion: Showing disrespect to the Constitution (burning copies, defacing preamble) was already covered by the 1971 Act; 2026 Amendment maintains this and extends digital disrespect to constitutional text – relevant given incidents of social media posts showing defaced Preamble pages
- BNS context: The Bharatiya Nyaya Sanhita (BNS, 2023) replaced IPC; Prevention of Insults to National Honour Act is a standalone statute, not part of IPC/BNS; it continues independently with the 2026 Amendment
- Political context: Bill passed with broad support across party lines in Lok Sabha and Rajya Sabha (though with debates on digital speech freedoms); opposition raised concerns about potential misuse against political protests involving flag symbolism – a legitimate civil liberties debate





KALPASAR PROJECT — GUJARAT'S ESTUARY DAM, TIDAL POWER, AND FRESHWATER RESERVOIR

Ministry: Ministry of Jal Shakti / Government of Gujarat

PIB Date: 27th July 2026

Easy Explanation

The Gulf of Khambhat (Cambay) is one of the world's most unusual bodies of water. It is a funnel-shaped inlet on Gujarat's coast where the tidal range — the difference between high tide and low tide — is among the world's highest, reaching 12 metres. This extraordinary tidal energy, combined with the freshwater rivers (Sabarmati, Mahi, Narmada, Bharuch) that flow into the Gulf, has inspired one of the most ambitious engineering projects in Indian history: the Kalpasar Project. Kalpasar proposes to build a 30 km dam across the mouth of the Gulf of Khambhat, closing off the northern portion to create: (1) A freshwater reservoir of approximately 10,000 million cubic metres — one of the world's largest artificial freshwater bodies, solving drought-prone Gujarat's water scarcity for decades; (2) Tidal power generation using the 12-metre tidal range — energy generated as tides flow in and out through turbines in the dam — potentially 5,880 MW of clean, predictable (tidal energy is more predictable than solar or wind) energy; (3) A multi-lane road/rail link across the dam connecting Saurashtra peninsula (currently reached only by a long detour around the Gulf) to South Gujarat and Mumbai — reducing distances by 200+ km. Parliament questions this week showed the project's status: the detailed project report has been completed; the project is awaiting Cabinet approval with a revised cost estimate of Rs 70,000+ crore (original 1995 estimate was Rs 7,000 crore); and the Gujarat government has approached the Centre for formal clearances.

Key Terms:

Term	Definition
Kalpasar Project	30 km dam across Gulf of Khambhat (Cambay); creates freshwater reservoir (10,000 MCM), tidal power (5,880 MW), road-rail link; cost Rs 70,000+ crore; awaiting Cabinet approval
Gulf of Khambhat	Funnel-shaped coastal inlet, Gujarat; tidal range 12 metres (among world's highest); Narmada, Mahi, Sabarmati rivers drain into it; currently a saline estuary; project converts northern portion to freshwater
Tidal energy	Electricity generated from tidal flows; predictable (tidal cycles follow lunar calendar) unlike solar/wind; Kalpasar would be world's largest tidal power project if built; current world's largest: Sihwa Lake (South Korea, 254 MW)



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Estuary dam	Dam built across an estuary (where river meets sea); converts saline estuary to freshwater reservoir; France's Rance Tidal Power Station (1966, 240 MW) is the world's most famous estuary dam; Kalpasar would be 24x larger
10,000 MCM reservoir	10,000 million cubic metres of freshwater storage; Gujarat's Sardar Sarovar Dam stores 9,500 MCM; Kalpasar would be Gujarat's largest water storage – solving chronic water deficit in Saurashtra and North Gujarat
Saurashtra connectivity	Currently, Saurashtra peninsula is accessed by a long road route around the Gulf (Ahmedabad-Rajkot-Saurashtra: 230 km); Kalpasar dam road/rail link would reduce this to 30 km – transformational logistics improvement
Environmental concerns	Kalpasar dam would trap sediment (Gulf carries heavy sediment load from Narmada, Sabarmati); disrupt fish migration patterns; affect flamingo habitat (Gulf of Khambhat hosts 1+ million flamingos); EIA has raised significant concerns

Important Points for UPSC:

- History: Kalpasar concept dates to 1976; first DPR 1995; multiple revisions; 2024 DPR completion marks the latest milestone; 50-year journey from concept to near-implementation reflects the project's scale and complexity
- Tidal energy significance: Tidal energy is the only renewable that is perfectly predictable; tides follow lunar cycles with zero variance; unlike solar (cloudy days) or wind (calm periods), tidal power can be scheduled like a thermal plant – this makes it uniquely valuable for grid stability
- Flamingo habitat: Gulf of Khambhat is one of India's most important flamingo habitats (Lesser Flamingo, Greater Flamingo); 5-15 lakh flamingos use the mud flats seasonally; dam would destroy significant habitat; Wildlife Institute of India has raised concerns; EIA must address this before Cabinet clearance
- Sediment trapping: Rivers bring sediment into the Gulf; closed Gulf would trap this sediment, potentially silting up the freshwater reservoir within 50-100 years; similar problems affected Egypt's Aswan High Dam (Nile Delta is now eroding because the dam traps sediment); Kalpasar's design must address this
- Road-rail link economics: Currently, a truck from Bhavnagar to Mumbai travels 650+ km via Ahmedabad; via Kalpasar dam road, this would be 450 km – saving 200 km; for a state with major





port-industrial activity in Saurashtra (Hazira, Pipavav, Mundra ports), this is a multi-thousand-crore annual logistics saving

- World comparison: France's Rance dam (1966) has been operating for 60 years successfully; South Korea's Sihwa Lake (254 MW, 2011) is the world's largest operating tidal plant; Netherlands' Eastern Scheldt (storm surge barrier with tidal power component); Kalpasar would be 20x larger than any existing tidal project – engineering challenge of historic proportions
- Water security dimension: Gujarat is water-scarce – the Saurashtran districts have rainfall variability that causes chronic droughts; 10,000 MCM freshwater reservoir would give Gujarat water security for 100+ years; this is the primary driver for the project despite environmental concerns

GREEN HYDROGEN MISSION – 12 PILOT PROJECTS, 70 HYDROGEN VEHICLES ACROSS 21 ROUTES

Ministry: Ministry of New and Renewable Energy

PIB Date: 29th July 2026

Easy Explanation

India's National Green Hydrogen Mission (launched January 2023, Rs 19,744 crore outlay) has a broad ambition: produce 5 MMT (million metric tonnes) of green hydrogen annually by 2030, making India one of the world's leading green hydrogen producers and exporters. But a mission without early proof-of-concept projects risks becoming a policy document without physical reality. This week, MNRE launched 12 pilot projects specifically for deploying 70 hydrogen-powered vehicles across 21 routes – the first large-scale demonstration of hydrogen mobility in India. The 70 vehicles span three categories: Hydrogen Fuel Cell Electric Vehicles (H2 FCEVs – cars and light commercial vehicles where hydrogen powers an electric motor); Hydrogen Internal Combustion Engine (HICE) vehicles (trucks and buses where hydrogen is burned directly like diesel, but with zero carbon emissions); and hydrogen-powered three-wheelers in select urban routes. The 21 routes span 12 states – including Pune-Mumbai (Maharashtra, testing H2 buses on highway), Delhi-Gurugram-Noida (NCR, testing H2 passenger cars), and Kochi-Thiruvananthapuram (Kerala, testing H2 three-wheelers). The pilot's purpose: generate real-world data on hydrogen vehicle performance, hydrogen station economics, and public acceptance – data needed to design a national hydrogen mobility policy. India's hydrogen train pilot (Week 7 brief) and these 70 road vehicles together signal that hydrogen mobility is moving from laboratory to streets.

Key Terms:

Term	Definition
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National Green Hydrogen Mission	Rs 19,744 crore; launched January 2023; target 5 MMT green hydrogen by 2030; covers production incentives (SIGHT scheme), pilot projects, export infrastructure, technology development
SIGHT scheme	Strategic Interventions for Green Hydrogen Transition; two components: electrolyser manufacturing incentive + green hydrogen production incentive; core financial instrument of NGHM
H2 FCEV	Hydrogen Fuel Cell Electric Vehicle; hydrogen stored in tank, converted to electricity via fuel cell, drives electric motor; zero emissions (water vapour only); Toyota Mirai, Hyundai Nexo are commercial examples; Tata Motors developing Indian FCEV
HICE (Hydrogen ICE)	Hydrogen Internal Combustion Engine; burns hydrogen like a petrol/diesel engine; simpler technology than fuel cell; some CO ₂ if trace hydrocarbons present; cheaper than FCEV; suitable for buses, trucks
Green hydrogen	Hydrogen produced by electrolysis of water using renewable electricity; zero carbon; current cost Rs 350-500/kg (target Rs 150/kg by 2030); 'grey' hydrogen (from natural gas with CO ₂ emissions) is current dominant production method
Electrolyser	Device that splits water into hydrogen and oxygen using electricity; green hydrogen requires electrolysers powered by renewable electricity; India building domestic electrolyser manufacturing under SIGHT scheme
21 routes selection criteria	Routes selected to test diverse conditions: highway (Pune-Mumbai), urban (Delhi NCR), hilly (Shimla), coastal (Kochi); temperature extremes from Ladakh to Kerala ensure robustness testing across India's diverse climate

Important Points for UPSC:

- 5 MMT target context: India currently produces 6 MMT of 'grey' hydrogen (from natural gas); 5 MMT additional green hydrogen by 2030 would double India's hydrogen capacity but completely eliminate the carbon footprint of the new capacity; total green + grey would be 11 MMT





- 70 vehicles in perspective: Toyota has sold 20,000 Mirais (FCEV) globally in 10 years; China has 10,000+ hydrogen buses; India's 70 vehicles is a very small pilot; the value is in data generation and supply chain testing, not in scale
- Hydrogen station infrastructure: Each pilot route needs hydrogen refuelling stations; 21 routes = 21 pilot stations; stations cost Rs 15-20 crore each; operational data on station economics (throughput, maintenance, safety) is essential before scale-up
- India's green hydrogen export ambition: NGHM targets becoming a major green hydrogen exporter – to Japan (which has committed to importing 3 MMT hydrogen by 2030), South Korea, and EU; India's competitive advantage is abundant cheap solar/wind for electrolysis; 70-vehicle pilot builds domestic confidence in the technology
- Hydrogen train + road vehicles: RDSO's hydrogen fuel cell train (Week 7) + MNRE's 70 hydrogen road vehicles = India testing hydrogen mobility across ALL transport modes simultaneously; rail (1,000 km range), road (300-500 km range), potentially shipping (port equipment) – comprehensive pilot strategy
- SIGHT scheme status: First tranche of electrolyser manufacturing incentive has been disbursed; Indian companies (NTPC, ACME, Greenko, ReNew) are building green hydrogen production capacity; 70-vehicle pilot is the demand-side counterpart to SIGHT's supply-side push
- Cost trajectory: Green hydrogen at Rs 350-500/kg; diesel equivalent cost ~Rs 180/kg; green hydrogen is 2-3x more expensive; at Rs 150/kg (2030 target), it becomes competitive with diesel; pilot routes test whether hydrogen vehicles' fuel efficiency offsets the higher fuel cost

VIKSIT VIBRANT VILLAGE PROGRAMME 2026 – BORDER VILLAGE DEVELOPMENT

Ministry: Ministry of Home Affairs / Ministry of Rural Development

PIB Date: 25th–26th July 2026

Easy Explanation

India's border villages – those within 50 km of the international border with China, Nepal, Bhutan, Bangladesh, Myanmar, and Pakistan – have historically been among the most neglected in India's development planning. The paradox: these villages are at the strategic frontline of India's sovereignty, yet for decades they were treated as security zones where economic development was limited, infrastructure was minimal, and populations were declining as young people migrated to cities. The depopulation of border villages created a double problem: strategic – abandoned villages near the China border create security voids that the PLA (People's Liberation Army) has exploited to build infrastructure and claim territory (Galwan is one example of how border area neglect becomes a security crisis); and economic – these communities live



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in difficult terrain with extreme weather but receive inadequate support. The Vibrant Villages Programme (VVP) was launched in 2023 specifically for villages on India's northern border (with China – Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh, Ladakh). Viksit Vibrant Village Programme 2026 is the expanded, more comprehensive version covering India's entire border periphery and scaled up from 19 districts to 46 districts. PM Modi interacted directly with Viksit VVP participants this week – tribal representatives, local leaders, and young people from border villages. The programme provides: 100% road connectivity, optical fibre internet, solar lighting, livelihood centres, healthcare sub-centres, and specifically – tourism and cultural heritage promotion to make border villages economically vibrant destinations rather than strategic liabilities.

Key Terms:

Term	Definition
Viksit Vibrant Village Programme (Viksit VVP)	Expanded 2026 version of Vibrant Villages Programme; covers 46 border districts (up from 19); all international borders; provides infrastructure, livelihoods, and cultural/tourism promotion to border villages
Vibrant Villages Programme (VVP, 2023)	Original programme; focused on China border (Arunachal, Sikkim, Uttarakhand, HP, Ladakh); 19 districts; 2,967 villages; Rs 4,800 crore outlay; 2023-2026; Viksit VVP is the successor
Border villages depopulation	China border villages: 20-40% population decline in 2001-2021; young people migrate to cities; abandoned villages create security gaps; Galwan context – PLA built roads and infrastructure in disputed areas precisely because Indian border areas were under-developed
BRO (Border Roads Organisation)	Constructs and maintains roads in border areas; under Ministry of Defence; Viksit VVP's road connectivity component is implemented by BRO; BRO has built 3,000+ km of roads in border areas annually
Strategic importance	China's 'model village' (Xiaokang village) construction in disputed territory opposite Arunachal Pradesh was India's wake-up call; India's response: develop Indian border villages as alternative to Chinese-constructed villages – civilian infrastructure as sovereignty assertion
Border tourism	Viksit VVP includes heritage walks, homestays, cultural performances in border villages; Ladakhi culture, Arunachali tribal traditions, Sikkim Buddhist monasteries – made accessible to domestic tourists; brings income and maintains population in border areas



**Optical fibre + solar**

Every VVP village to have optical fibre internet and solar lighting; digital connectivity enables e-commerce, tele-education, and telemedicine – making border village life economically and socially viable without migration to cities

Important Points for UPSC:

- China's Xiaokang villages: China has built 600+ 'Xiaokang' (moderately prosperous) villages in Tibetan Autonomous Region near the Indian border; modern housing, roads, healthcare, internet; some in areas India claims; India's VVP is directly inspired by China's strategy – counter with Indian development
- Galwan context: The June 2020 Galwan Valley clash exposed how decades of Indian under-development in Ladakh had allowed Chinese infrastructure build-up to go unnoticed; Viksit VVP specifically targets Ladakh – 663 border villages in Ladakh are being developed
- 46 districts vs 19: Expansion from 19 to 46 districts means Viksit VVP now covers India's borders with all 7 land neighbours – China, Pakistan, Nepal, Bhutan, Bangladesh, Myanmar, and even the coastal border districts facing Sri Lanka and Maldives (maritime dimension)
- Tourism as development tool: Spiti (HP), Tawang (Arunachal), Gurez Valley (J&K), Mana (Uttarakhand – last Indian village before Tibet border) are becoming tourism destinations; tourists visiting these villages spend money locally, giving villagers an economic reason to stay
- PM's direct interaction: PM Modi's interaction with VVP participants (July 26) was broadcast nationally – political signal that border villages are a priority, not an afterthought; direct PM engagement with border community members also has security dimension – intelligence about ground conditions
- BRO performance: BRO has been building roads in border areas at unprecedented speed since 2019; connected Umlingla Pass (world's highest motorable road, 19,024 ft, Ladakh) by road in 2021; building 100+ tunnels and bridges in border areas; Viksit VVP's road connectivity depends on this BRO acceleration
- PMGSY + VVP convergence: Pradhan Mantri Gram Sadak Yojana (rural roads) and BRO border roads together provide VVP connectivity; a border village now unreachable in winter should have all-weather connectivity by 2027 under convergent PMGSY-BRO planning





PRACTICE QUESTIONS

10 PRELIMS QUESTIONS — UPSC PRELIMS STYLE

Q1. 'Ancient Buddhist Site of Sarnath', inscribed as India's 43rd UNESCO World Heritage Site this week, is significant for which of the following reasons?

1. It is the site where the Buddha attained enlightenment under the Bodhi Tree.
2. It houses the original Lion Capital of Ashoka whose design forms India's National Emblem.
3. The Dhamek Stupa marks the location of the Buddha's First Sermon (Dhammacakkappavattana Sutta).
4. It is one of the four major Buddhist pilgrimage sites, the others being Lumbini, Bodh Gaya, and Kushinagar.

Which of the above are correct?

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

Q2. With reference to the Samudra Manthan (National Offshore Exploration Scheme), consider the following:

1. India has 2.02 million sq km of Exclusive Economic Zone (EEZ) but has adequately explored only about 10% of its offshore sedimentary basins.
2. The scheme has an outlay of Rs 84,084 crore over 10 years for seismic surveys, exploratory drilling, and data acquisition.
3. Methane hydrates in India's EEZ are estimated to contain several times the world's conventional gas reserves but are not yet commercially viable.
4. The scheme specifically focuses on the Mumbai High and KG-D6 basins where production is currently highest.

How many are correct?

- (a) Only two
- (b) Only three
- (c) All four
- (d) Only one

Q3. The Kalpasar Project, discussed in Parliament this week, is planned across the:

- (a) Gulf of Mannar between India and Sri Lanka, for tidal power and freshwater reservoir





- (b) Gulf of Khambhat (Cambay) in Gujarat, for freshwater storage, tidal power, and road-rail connectivity
- (c) Palk Strait between Tamil Nadu and Sri Lanka, for a permanent road-rail bridge
- (d) Chilika Lake in Odisha, for freshwater conservation and aquaculture development

Q4. The Public Examinations (Prevention of Unfair Means) Amendment Bill, 2026 makes which of the following changes to the 2024 Act?

1. Extends coverage to include all state government competitive examinations, not just central examinations.
2. Explicitly criminalises digital acts of disrespect to national examination integrity.
3. Creates a National Examination Integrity Board (NEIB) as a permanent oversight body.
4. Makes impersonation (appearing in someone else's name) a specifically punishable separate offence.

Which of the above are correct?

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

Q5. Consider the following about the PM Surya Sarovar Yojana (PM-SSY), approved by Cabinet this week:

1. It deploys floating solar panels on water surfaces of reservoirs owned by central government agencies.
2. Each project combines floating solar with Battery Energy Storage Systems (BESS) for 24-hour power supply.
3. Floating solar panels reduce water evaporation by 10-15%, providing a dual benefit of energy and water conservation.
4. The scheme has an outlay of Rs 84,084 crore – the same as the Samudra Manthan offshore exploration scheme.

Which are correct?

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

Q6. Sowa-Rigpa, which came up in PIB this week, is best described as:

- (a) A traditional textile weaving technique practised by Tibetan Buddhist communities in Arunachal Pradesh





- (b) The traditional medicine system of Tibetan, Himalayan and Mongolian cultures; recognised as India's 5th traditional medicine system under AYUSH
- (c) A community-based biodiversity documentation practice used in Sixth Schedule tribal areas of Northeast India
- (d) A traditional water harvesting system used by Ladakhi farmers for high-altitude irrigation

Q7. LegRAA, launched by NIC this week, is an AI tool that:

- (a) Provides automated filing of cases in eCourts and tracks case progress for litigants
- (b) Assists judges and judicial officers in legal research by synthesising relevant precedents from SC/HC judgments through natural language queries
- (c) Monitors compliance with court orders by government departments and generates automated contempt notices
- (d) Translates court proceedings in real-time from regional languages to English for High Courts

Q8. India's first domestic Protection and Indemnity (P&I) insurance product under BMIP (Bharat Maritime Insurance Pool) was launched to:

- 1. Provide an alternative to the 13 International Group P&I Clubs that dominate global maritime insurance.
- 2. Ensure Indian shipping is not subject to geopolitical risks of Western insurance denial (as seen during Russia sanctions 2022).
- 3. Pool risk across multiple Indian insurers to cover large maritime liability claims no single insurer could handle.
- 4. Replace all existing cargo and hull insurance for Indian-flagged vessels.

Which are correct?

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

Q9. With reference to the Viksit Vibrant Village Programme 2026, which of the following correctly distinguishes it from the original Vibrant Villages Programme (2023)?

- (a) Viksit VVP covers only the China border while VVP 2023 covered all borders
- (b) Viksit VVP focuses only on economic development while VVP 2023 also included defence fortification
- (c) Viksit VVP has been expanded from 19 to 46 border districts and covers India's entire border periphery, not just the northern border





(d) Viksit VVP is a state government programme while VVP 2023 was a centrally sponsored scheme

Q10. Consider the following about the National Green Hydrogen Mission's 12 pilot projects for hydrogen vehicles:

1. The pilot deploys 70 hydrogen-powered vehicles across 21 routes in 12 states.
2. The vehicles include Hydrogen Fuel Cell Electric Vehicles (H2 FCEVs), Hydrogen ICE vehicles, and hydrogen three-wheelers.
3. The pilots specifically exclude highway routes to focus on urban air quality improvement.
4. The mission targets producing 5 MMT of green hydrogen annually by 2030.

Which are correct?

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

2 MAINS QUESTIONS WITH MODEL ANSWERS

MAINS QUESTION 1 — 150 WORDS:

Samudra Manthan, PM Surya Sarovar Yojana, the REPM scheme, and the Green Hydrogen Mission's vehicle pilots all appeared in the same week. A critic argues they represent contradictory impulses in India's energy policy – simultaneously pursuing fossil fuel expansion and clean energy transition. Do you agree? Analyse India's energy strategy this week as a coherent whole.

MODEL ANSWER — 150 WORDS:

The apparent contradiction dissolves when seen through India's energy security framework rather than a purely environmental lens. India imports 87% of its oil (\$100+ billion/year) – energy poverty is a present crisis, not a future risk. Samudra Manthan's offshore exploration reduces this import dependence within a 10-15 year horizon. That horizon is precisely when India's clean energy stack (PM-SSY floating solar + BESS, green hydrogen vehicles, railway electrification at 99.6%) will have matured sufficiently to begin displacing fossil fuel demand. The sequencing is deliberate: bridge the import gap with domestic fossil fuel (Samudra Manthan) while building the clean energy infrastructure (PM-SSY, REPM for EV motors, hydrogen pilots) that makes the transition economically viable. The REPM scheme connects rare earth security to EV manufacturing – ensuring that when EVs scale, India controls the magnet supply chain



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domestically. The Green Hydrogen pilots generate the real-world data needed to design national hydrogen policy for 2030+. Far from contradictory, these four initiatives form a sequential energy sovereignty strategy: short-term (domestic fossil), medium-term (electrification and storage), long-term (hydrogen) – with the REPM ensuring the clean energy supply chain is domestically controlled throughout.

MAINS QUESTION 2 — 250 WORDS:

'India's border development and cultural heritage preservation are not separate policy domains – they are two sides of the same national security coin.' Using the Viksit Vibrant Village Programme and the Sarnath UNESCO inscription as your primary examples, and drawing on any other relevant developments from this week's PIB, critically examine this assertion.

MODEL ANSWER — 250 WORDS:

The assertion captures a fundamental strategic insight: territorial sovereignty is sustained not just by military presence but by civilian vitality and cultural continuity. When border villages are depopulated and cultural ties to territory are severed, territorial claims weaken both legally and demographically. Viksit Vibrant Village Programme's explicit strategic purpose is to counter China's 'Xiaokang villages' – China has built 600+ modern villages in Tibetan territory, some in areas India disputes, precisely to create physical facts on the ground and civilian presence that validates Chinese claims. India's VVP expansion from 19 to 46 districts responds with the same logic: a village with 500 residents, optical fibre connectivity, a Khelo India Centre, and a tourism homestay is a far stronger sovereignty assertion than a military post alone. When young people stay in Tawang rather than migrating to Guwahati, Arunachal Pradesh is lived-in territory – anthropologically and strategically secured. Sarnath's UNESCO inscription operates at a different but equally strategic level. India's Buddhist heritage connects it to every Buddhist-majority country in Asia – Thailand, Sri Lanka, Japan, South Korea, Myanmar, Vietnam, Cambodia, Bhutan. These are countries that China is simultaneously courting. When India inscribes Sarnath – where Buddhism began – on the World Heritage List, it asserts cultural leadership over a civilisational tradition that 600 million Asians identify with. This is soft power as strategic depth: countries that see India as the birthplace and custodian of their foundational religion have a cultural bond that makes them less susceptible to Chinese influence. The Tourism Hub backgrounder this week explicitly links Buddhist Circuit tourism development (Sarnath + Bodh Gaya + Kushinagar + Lumbini pilgrimage corridor) to India's foreign policy outreach – Prime Ministers from Sri Lanka, Thailand, and Japan visit these sites; these visits reinforce civilisational rather than merely diplomatic ties. The structural gap in this strategy: neither border development nor heritage diplomacy delivers results quickly. VVP villages need 10-15 years to become genuinely vibrant; Buddhist tourism needs decades of infrastructure investment to match India's narrative. China is building infrastructure at 3x





India's pace in border areas. The cultural and development tools are correct but their timelines are asymmetric with China's construction speed – this is the central challenge India's border development-culture nexus must honestly confront.

PRELIMS ANSWERS & EXPLANATIONS

Q1. Answer: (a) 2, 3 and 4 only

Explanation: Statement 1 is WRONG – Sarnath is NOT where the Buddha attained enlightenment. The Buddha attained enlightenment at BODH GAYA (Bihar), under the Bodhi Tree. Sarnath is where he delivered his FIRST SERMON to five disciples after attaining enlightenment. This is the most common confusion in Buddhist pilgrimage site questions. Statements 2 (Lion Capital, National Emblem), 3 (Dhamek Stupa = First Sermon site), and 4 (four pilgrimage sites: Lumbini, Bodh Gaya, Sarnath, Kushinagar) are all correct.

Q2. Answer: (b) Only three

Explanation: Statement 4 is WRONG – Samudra Manthan focuses on UNDER-EXPLORED basins (the 19 inadequately explored of 26 total), NOT on Mumbai High or KG-D6 which are already well-explored and producing. Mumbai High has been producing since 1976; the scheme's purpose is precisely to explore areas OTHER than these two known producing basins. Statements 1 (EEZ 2.02 million sq km, 10% adequately explored), 2 (Rs 84,084 crore, 10 years), and 3 (methane hydrates, not yet commercially viable) are correct.

Q3. Answer: (b)

Explanation: Kalpasar Project is planned across the Gulf of Khambhat (also called Gulf of Cambay) in Gujarat – a 30 km dam that would create a freshwater reservoir (10,000 MCM), generate tidal power (5,880 MW using the 12-metre tidal range), and provide a road-rail link connecting Saurashtra to South Gujarat. NOT Gulf of Mannar (between India and Sri Lanka – that is a marine national park with coral reefs). NOT Palk Strait (proposed road-rail bridge). NOT Chilika Lake (Odisha's coastal lake, a Ramsar site).

Q4. Answer: (a) 1, 3 and 4 only

Explanation: Statement 2 is WRONG – the Amendment does NOT criminalise 'digital acts of disrespect to national examination integrity'; that would not make sense as a phrase. The Amendment criminalises digital cheating and ensures digital security of examinations. It is the PREVENTION OF INSULTS TO NATIONAL HONOUR Amendment Bill 2026 (Art 27 of this brief) that criminalises digital disrespect to national symbols – students commonly confuse the two bills introduced the same week. Statements 1 (state exams included), 3





(NEIB created), and 4 (impersonation separately punishable) are all correct changes under the Examinations Amendment Bill.

Q5. Answer: (a) 1, 2 and 3 only

Explanation: Statement 4 is WRONG – PM-SSY outlay is Rs 5,070 crore, NOT Rs 84,084 crore. Rs 84,084 crore is Samudra Manthan's outlay. Confusing the outlay of two Cabinet decisions announced the same day (July 31) is a classic MCQ trap. Statements 1 (floating solar on central government reservoir surfaces), 2 (BESS + floating solar = 24-hour dispatchable power), and 3 (10-15% evaporation reduction) are all correct.

Q6. Answer: (b)

Explanation: Sowa-Rigpa is the traditional medicine system of Tibetan, Himalayan and Mongolian cultures – recognised under the Sowa-Rigpa Act 2020 as India's 5th traditional medicine system alongside Ayurveda, Yoga, Unani, and Siddha (the A-Y-U-S-H acronym includes it). NOT a textile technique. NOT a biodiversity documentation practice (that is People's Biodiversity Register under NBA). NOT a water harvesting system (Ladakhi traditional water systems are called 'kul' or 'zing').

Q7. Answer: (b)

Explanation: LegRAA (Legal Research Analysis Assistant) is specifically a legal RESEARCH tool that helps judges search for and synthesise relevant precedents from SC/HC judgments using natural language queries – like asking a very knowledgeable legal assistant a question and getting a synthesised answer with citations. It does NOT file cases (that is eFiling system). It does NOT monitor compliance (separate system). It does NOT do real-time translation (that is BHASHINI's domain, separately being integrated into courts).

Q8. Answer: (a) 1, 2 and 3 only

Explanation: Statement 4 is WRONG – BMIP's P&I insurance does NOT replace cargo or hull insurance. P&I (Protection and Indemnity) covers LIABILITY to third parties (crew injuries, pollution, collision damage to other ships); cargo insurance covers loss of cargo; hull insurance covers damage to the ship itself – these are three completely different insurance products. BMIP only does P&I. Statements 1, 2, and 3 are all correct reasons for BMIP's launch.

Q9. Answer: (c)

Explanation: Viksit Vibrant Village Programme 2026 has been expanded from 19 to 46 border districts and now covers India's ENTIRE border periphery – all 7 land borders (China, Pakistan, Nepal, Bhutan, Bangladesh, Myanmar) plus coastal border districts – not just the northern (China) border as the original VVP





2023 focused on. Option (a) reverses this – VVP 2023 focused on north (China border); Viksit VVP expanded to all. Options (b) and (d) are factually wrong.

Q10. Answer: (a) 1, 2 and 4 only

Explanation: Statement 3 is WRONG – the pilots do NOT exclude highway routes. One of the explicitly mentioned pilot routes is Pune-Mumbai Highway for hydrogen buses – highways are specifically included to test range and refuelling infrastructure on long-distance routes. Urban routes alone would not generate the data needed for a comprehensive hydrogen mobility policy. Statements 1 (70 vehicles, 21 routes, 12 states), 2 (H2 FCEV + HICE + three-wheelers), and 4 (5 MMT target by 2030) are all correct.

