



**AUGUST
2026**

MONTHLY
COMPILATION

PIB

MONTHLY COMPILATION

AUGUST 2026

POLICY UPDATES. DEEPER CONTEXT. HIGHER CLARITY.

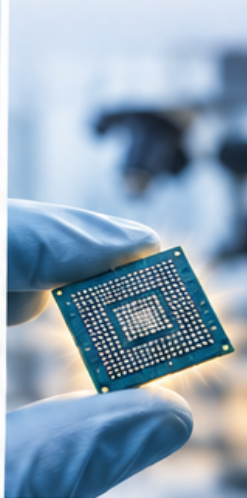
ECONOMY



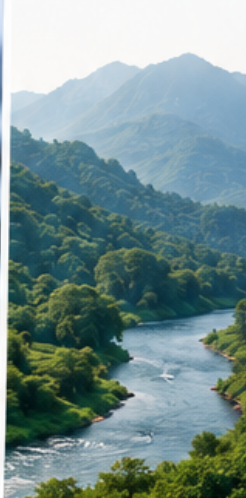
DEFENCE & SECURITY



SCIENCE & TECHNOLOGY



ENVIRONMENT & SUSTAINABILITY



INFRASTRUCTURE & INFRA TECH



AGRICULTURE & RURAL DEVELOPMENT



HEALTH & HUMAN DEVELOPMENT



SOCIAL SECTOR & INCLUSION



INTERNATIONAL RELATIONS



INSTITUTIONS & GOVERNANCE



INDUSTRY, TRADE & OPPORTUNITIES



CULTURE, SPORTS & SOCIETY



**A Stronger India
in Many Ways**

SAME
FACTS.
A CLEARER
PICTURE.



Table of Contents

.....	ERROR! BOOKMARK NOT DEFINED.
GOBARDHAN — RS 23,731 CRORE NATIONAL UNIFIED SCHEME FOR COMPRESSED BIOGAS	13
EASY EXPLANATION	14
KEY TERMS:	14
IMPORTANT POINTS FOR UPSC:	15
INVENTORY-BASED CROSS-BORDER E-COMMERCE EXPORT FRAMEWORK — FTP 2023	16
EASY EXPLANATION	16
KEY TERMS:	16
IMPORTANT POINTS FOR UPSC:	17
AGNI-4 BALLISTIC MISSILE — SUCCESSFUL TEST-FIRE.....	18
EASY EXPLANATION	18
KEY TERMS:	18
IMPORTANT POINTS FOR UPSC:	19
DSC A24 — FIFTH DIVING SUPPORT CRAFT LAUNCHED	20
EASY EXPLANATION	20
KEY TERMS:	20
IMPORTANT POINTS FOR UPSC:	21
GAGANYAAN + BHARATIYA ANTARIKSH STATION — PARLIAMENTARY QUESTION MILESTONES	21
EASY EXPLANATION	21
KEY TERMS:	22
IMPORTANT POINTS FOR UPSC:	23
PFBR + BHARAT SMALL MODULAR REACTORS — NUCLEAR ROADMAP TO 2047	23
EASY EXPLANATION	23
KEY TERMS:	24
IMPORTANT POINTS FOR UPSC:	25
PM E-DRIVE — RS 2,000 CRORE FOR EV CHARGING INFRASTRUCTURE NATIONWIDE.....	25
EASY EXPLANATION	25
KEY TERMS:	26
IMPORTANT POINTS FOR UPSC:	27
GLAW LAKE — ARUNACHAL PRADESH'S FIRST RAMSAR SITE; INDIA'S 101ST	27





EASY EXPLANATION	27
KEY TERMS:	28
IMPORTANT POINTS FOR UPSC:	28
CLOUDED LEOPARD CONSERVATION ACTION PLAN — INDIA'S DEDICATED CAP FOR A FORGOTTEN CAT	29
EASY EXPLANATION	29
KEY TERMS:	30
IMPORTANT POINTS FOR UPSC:	31
ICAR — INDIGENOUS AFRICAN SWINE FEVER VACCINE: INDIA'S BIOSECURITY BREAKTHROUGH	31
EASY EXPLANATION	31
KEY TERMS:	32
IMPORTANT POINTS FOR UPSC:	33
C-DAC + GEOLOGICAL SURVEY OF INDIA MOU — AI FOR MINERAL EXPLORATION	33
EASY EXPLANATION	33
KEY TERMS:	34
IMPORTANT POINTS FOR UPSC:	34
INDIA AT FAIR — CONTRIBUTING CRITICAL EQUIPMENT TO INTERNATIONAL MEGA-SCIENCE	35
EASY EXPLANATION	35
KEY TERMS:	36
IMPORTANT POINTS FOR UPSC:	36
INDIAAI MISSION — SOVEREIGN AI INFRASTRUCTURE + AIKOSH UNIVERSITY PROGRAMME	37
EASY EXPLANATION	37
KEY TERMS:	38
IMPORTANT POINTS FOR UPSC:	38
INDIAN PHARMACOPOEIA COMMISSION RECOGNISED BY WHO SEARO AS REGIONAL CENTRE OF EXCELLENCE	39
EASY EXPLANATION	39
KEY TERMS:	40
IMPORTANT POINTS FOR UPSC:	41
INDIA-RWANDA FIRST JOINT TRADE COMMITTEE — AFRICA TRADE DEEPENING	41
EASY EXPLANATION	41
KEY TERMS:	42
IMPORTANT POINTS FOR UPSC:	42
IEPFA INTEGRATED PORTAL 2.0 — INVESTOR EDUCATION AND PROTECTION FUND UPGRADE	43
EASY EXPLANATION	43





KEY TERMS:	44
IMPORTANT POINTS FOR UPSC:	44
USBRL — ALL-WEATHER RAIL CONNECTIVITY TO KASHMIR, STRATEGIC AND ECONOMIC MILESTONE ..	45
EASY EXPLANATION	45
KEY TERMS:	45
IMPORTANT POINTS FOR UPSC:	46
NAMO BHARAT — REGIONAL RAPID TRANSIT SYSTEM UPDATE	47
EASY EXPLANATION	47
KEY TERMS:	47
IMPORTANT POINTS FOR UPSC:	48
CHANDIPURA VIRUS OUTBREAK — NATIONAL JOINT OUTBREAK RESPONSE TEAM DEPLOYED	48
EASY EXPLANATION	49
KEY TERMS:	49
IMPORTANT POINTS FOR UPSC:	50
PINGALI VENKAYYA — 150TH BIRTH ANNIVERSARY OF INDIA'S FLAG DESIGNER.....	50
EASY EXPLANATION	50
KEY TERMS:	51
IMPORTANT POINTS FOR UPSC:	52
PIB BACKGROUNDER — ROADS REIMAGINED: THE RISE OF INDIA'S EV ECOSYSTEM	52
EASY EXPLANATION	52
KEY TERMS:	53
IMPORTANT POINTS FOR UPSC:	54
PIB BACKGROUNDER — NAXAL-FREE INDIA: PROGRESS AND PATH FORWARD	54
EASY EXPLANATION	54
KEY TERMS:	55
IMPORTANT POINTS FOR UPSC:	55
PIB BACKGROUNDER — GOBARDHAN: FUELLING CLEAN ENERGY AND RURAL GROWTH.....	56
EASY EXPLANATION	56
KEY TERMS:	57
IMPORTANT POINTS FOR UPSC:	57
PIB BACKGROUNDER — GI TAGS: SCALING TRADITIONAL WEALTH INTO GLOBAL BRANDS	58
EASY EXPLANATION	58
KEY TERMS:	59
IMPORTANT POINTS FOR UPSC:	59





PIB BACKGROUNDER — DIGITAL TRANSFORMATION OF THE INDIAN JUDICIARY	60
EASY EXPLANATION	60
KEY TERMS:	61
IMPORTANT POINTS FOR UPSC:	61
PIB BACKGROUNDER — INDIA'S SOLAR GROWTH ENTERS A NEW ERA	62
EASY EXPLANATION	62
KEY TERMS:	63
IMPORTANT POINTS FOR UPSC:	63
PIB BACKGROUNDER — PM VIKSIT BHARAT ROJGAR YOJANA (PM-VBRY)	64
EASY EXPLANATION	64
KEY TERMS:	64
IMPORTANT POINTS FOR UPSC:	65
PIB BACKGROUNDER — THE MAKING OF A SPORTING NATION (CWG 2026 UPDATE)	66
EASY EXPLANATION	66
KEY TERMS:	66
IMPORTANT POINTS FOR UPSC:	67
NATIONAL HANDLOOM DAY 2026 + NETFLIX-CULTURE-TOURISM PARTNERSHIP	68
EASY EXPLANATION	68
KEY TERMS:	68
IMPORTANT POINTS FOR UPSC:	69
HONORARY MENTIONS	71
PRACTICE QUESTIONS	75
10 PRELIMS QUESTIONS — UPSC PRELIMS STYLE	75
2 MAINS QUESTIONS WITH MODEL ANSWERS	77
PRELIMS ANSWERS & EXPLANATIONS	79
WEEK 2 - AUGUST 2026	82
INDIA CROSSES 300 GW NON-FOSSIL FUEL POWER CAPACITY	82
EASY EXPLANATION	82
KEY TERMS:	82
IMPORTANT POINTS FOR UPSC:	83
ASIATIC LION 523 → 891 IN A DECADE + GAJ GAURAV AWARDS 2026 — INDIA'S CONSERVATION DOUBLE	84
EASY EXPLANATION	84
KEY TERMS:	84





IMPORTANT POINTS FOR UPSC:	85
JAL JEEVAN MISSION — 7 YEARS, RURAL TAP WATER COVERAGE 16.7% TO OVER 82%	86
EASY EXPLANATION	86
KEY TERMS:	86
IMPORTANT POINTS FOR UPSC:	87
NATIONAL GREEN HYDROGEN MISSION — ADVANCING INTO PETROLEUM AND REFINING SECTOR.....	88
EASY EXPLANATION	88
KEY TERMS:	88
IMPORTANT POINTS FOR UPSC:	89
BHASHINI + NITI AAYOG — MULTILINGUAL AI FOR INCLUSIVE GOVERNANCE	90
EASY EXPLANATION	90
KEY TERMS:	90
IMPORTANT POINTS FOR UPSC:	91
DIGILOCKER + AAERI — INDIAN STUDENTS' DOCUMENTS VERIFIED FAST-TRACK FOR AUSTRALIA	92
EASY EXPLANATION	92
KEY TERMS:	92
IMPORTANT POINTS FOR UPSC:	93
E-SAMUDRA — INDIA'S INTEGRATED DIGITAL PLATFORM FOR MARITIME GOVERNANCE	94
EASY EXPLANATION	94
KEY TERMS:	95
IMPORTANT POINTS FOR UPSC:	95
CBDC-BASED DIRECT BENEFIT TRANSFER — FIRST REAL-WORLD DEPLOYMENT IN INDIAN UTS.....	96
EASY EXPLANATION	96
KEY TERMS:	96
IMPORTANT POINTS FOR UPSC:	97
INDIA-SACU PREFERENTIAL TRADE AGREEMENT — TERMS OF REFERENCE SIGNED	98
EASY EXPLANATION	98
KEY TERMS:	99
IMPORTANT POINTS FOR UPSC:	99
INDIA-NAMIBIA JOINT TRADE COMMITTEE — 4TH SESSION, CRITICAL MINERALS AND GREEN HYDROGEN	100
EASY EXPLANATION	100
KEY TERMS:	101
IMPORTANT POINTS FOR UPSC:	101





MITHILA MAKHANA — GI-TAGGED, FIRST SEA-ROUTE EXPORT TO AUSTRALIA.....	102
EASY EXPLANATION	102
KEY TERMS:	103
IMPORTANT POINTS FOR UPSC:	104
MUSTARD HONEY — DERGANG FPO, TRIPURA TO DUBAI: NORTHEAST'S AGRICULTURAL EXPORT MOMENT.....	104
EASY EXPLANATION	104
KEY TERMS:	105
IMPORTANT POINTS FOR UPSC:	106
SINTERED RARE EARTH PERMANENT MAGNETS — 20 BIDS SIGNAL DOMESTIC MANUFACTURING MOMENTUM.....	106
EASY EXPLANATION	106
KEY TERMS:	107
IMPORTANT POINTS FOR UPSC:	108
NBA DISBURSES ₹15.52 CRORE ABS PROCEEDS FROM MUSTARD GENETIC RESOURCES.....	108
EASY EXPLANATION	109
KEY TERMS:	109
IMPORTANT POINTS FOR UPSC:	110
BRICS CULTURE MINISTERS' XI MEETING — BHOPAL DECLARATION ADOPTED.....	111
EASY EXPLANATION	111
KEY TERMS:	111
IMPORTANT POINTS FOR UPSC:	112
CCI HOSTS BRICS HEADS OF COMPETITION AUTHORITIES — INDIA'S ANTITRUST LEADERSHIP.....	113
EASY EXPLANATION	113
KEY TERMS:	113
IMPORTANT POINTS FOR UPSC:	114
UPI — ZERO CHARGES FOR USERS FORMALLY CONFIRMED BY GOVERNMENT	115
EASY EXPLANATION	115
KEY TERMS:	115
IMPORTANT POINTS FOR UPSC:	116
E20 PETROL — OIL COMPANIES TEST AND VALIDATE: NO CHLORIDE CONTAMINATION	117
EASY EXPLANATION	117
KEY TERMS:	118
IMPORTANT POINTS FOR UPSC:	118
AI UNCOVERS HIDDEN CANCER STEM CELLS — PATHWAY TO PRECISION ONCOLOGY	119





EASY EXPLANATION	119
KEY TERMS:	120
IMPORTANT POINTS FOR UPSC:	121
 <u>AI-POWERED CERVICAL CANCER SCREENING — GRIVA HEALTHCARE'S INDIGENOUS TECHNOLOGY..121</u>	
EASY EXPLANATION	121
KEY TERMS:	122
IMPORTANT POINTS FOR UPSC:	123
 <u>UNUSUAL OZONE LAYER DISCOVERED ABOVE NORTH BAY OF BENGAL — INDIAN SCIENTISTS.....124</u>	
EASY EXPLANATION	124
KEY TERMS:	124
IMPORTANT POINTS FOR UPSC:	125
 <u>NEW COMPUTER MODEL FOR CME FORECASTING — SPACE WEATHER PREDICTION ADVANCE.....126</u>	
EASY EXPLANATION	126
KEY TERMS:	126
IMPORTANT POINTS FOR UPSC:	127
 <u>ICMR-SHINE 2026 — SCHOOL STUDENTS SPEND A DAY AS SCIENTISTS ACROSS 83 LOCATIONS.....128</u>	
EASY EXPLANATION	128
KEY TERMS:	129
IMPORTANT POINTS FOR UPSC:	130
 <u>MONSOON SESSION 2026 — PARLIAMENT ADJOURNS SINE DIE, 12 BILLS PASSED130</u>	
EASY EXPLANATION	130
KEY TERMS:	131
IMPORTANT POINTS FOR UPSC:	132
 <u>NEXT GENERATION OFFSHORE PATROL VESSEL LAUNCHED — NAVAL INDIGENISATION CONTINUES ..133</u>	
EASY EXPLANATION	133
KEY TERMS:	133
IMPORTANT POINTS FOR UPSC:	134
 <u>ISRO ON LEO SATELLITE MEGA-CONSTELLATIONS AND SPACE DEBRIS — INDIA'S FORMAL POSITION..135</u>	
EASY EXPLANATION	135
KEY TERMS:	135
IMPORTANT POINTS FOR UPSC:	136
 <u>CUMULATIVE EXPORTS APRIL-JULY 2026-27 — \$316.42 BILLION, 13.16% GROWTH137</u>	
EASY EXPLANATION	137
KEY TERMS:	138
IMPORTANT POINTS FOR UPSC:	139





NABL — INDIA'S FIRST ACCREDITATION SCHEME FOR MOBILE FOOD TESTING LABORATORIES.....	139
EASY EXPLANATION	139
KEY TERMS:	140
IMPORTANT POINTS FOR UPSC:	141
AGARWOOD OIL FROM NORTHEAST INDIA — MDONER + CHEMEXCIL EXPORT PUSH.....	141
EASY EXPLANATION	141
KEY TERMS:	142
IMPORTANT POINTS FOR UPSC:	143
NUCLEAR ENERGY ROADMAP — DAE'S COMPREHENSIVE PARLIAMENT STATEMENT	144
EASY EXPLANATION	144
KEY TERMS:	144
IMPORTANT POINTS FOR UPSC:	145
BHARAT TAXI — COOPERATIVE-MODEL MOBILITY PLATFORM, DRIVER-OWNED ALTERNATIVE.....	146
EASY EXPLANATION	146
KEY TERMS:	147
IMPORTANT POINTS FOR UPSC:	148
PIB BACKGROUNDER — CPGRAMS: DIGITAL GRIEVANCE REDRESS AT SCALE	148
EASY EXPLANATION	149
KEY TERMS:	149
IMPORTANT POINTS FOR UPSC:	150
PIB BACKGROUNDER — SHIP RECYCLING IN INDIA: REGULATORY TRANSFORMATION AND GLOBAL LEADERSHIP	150
EASY EXPLANATION	151
KEY TERMS:	151
IMPORTANT POINTS FOR UPSC:	152
PIB BACKGROUNDER — CONTAINER MANUFACTURING ASSISTANCE SCHEME: INDIA'S MARITIME FUTURE	153
EASY EXPLANATION	153
KEY TERMS:	153
IMPORTANT POINTS FOR UPSC:	154
PIB BACKGROUNDER — MSME DEVELOPMENT (AMENDMENT) BILL 2026.....	155
EASY EXPLANATION	155
KEY TERMS:	155
IMPORTANT POINTS FOR UPSC:	156
PIB BACKGROUNDER — PAIMANA: STRENGTHENING DATA-DRIVEN INFRASTRUCTURE GOVERNANCE	157





EASY EXPLANATION	157
KEY TERMS:	158
IMPORTANT POINTS FOR UPSC:	159
HONORARY MENTIONS	160
PRACTICE QUESTIONS	165
10 PRELIMS QUESTIONS — UPSC PRELIMS STYLE.....	165
2 MAINS QUESTIONS WITH MODEL ANSWERS.....	168
PRELIMS ANSWERS & EXPLANATIONS.....	169
WEEK 3 - AUGUST 2026	172
IAF MULTINATIONAL EXERCISES — PITCH BLACK 2026 (AUSTRALIA) + UDARA SHAKTI 2026 (MALAYSIA).....	172
EASY EXPLANATION	172
KEY TERMS:	172
IMPORTANT POINTS FOR UPSC:	173
INS MANGROL — THIRD ANTI-SUBMARINE WARFARE SHALLOW WATER CRAFT DELIVERED BY CSL, KOCHI	174
EASY EXPLANATION	174
KEY TERMS:	174
IMPORTANT POINTS FOR UPSC:	175
NBA RELEASES ₹2.82 CRORE ABS FUNDS — HORTICULTURAL GENETIC RESOURCES, KARNATAKA	176
EASY EXPLANATION	176
KEY TERMS:	176
IMPORTANT POINTS FOR UPSC:	177
FDC BAN — CHLORPHENIRAMINE + PHENYLEPHRINE FOR CHILDREN BELOW FOUR YEARS	178
EASY EXPLANATION	178
KEY TERMS:	178
IMPORTANT POINTS FOR UPSC:	179
INDIA-NEW ZEALAND DEFENCE STRATEGIC DIALOGUE — 2ND EDITION, WELLINGTON	180
EASY EXPLANATION	180
KEY TERMS:	180
IMPORTANT POINTS FOR UPSC:	181
INS NIPUN — SECOND INDIGENOUS DIVING SUPPORT VESSEL TO BE COMMISSIONED.....	182
EASY EXPLANATION	182
KEY TERMS:	182
IMPORTANT POINTS FOR UPSC:	183





DRDO MISSILE SYSTEMS — TRANSFER OF TECHNOLOGY TO INDIAN DEFENCE INDUSTRY	184
EASY EXPLANATION	184
KEY TERMS:	184
IMPORTANT POINTS FOR UPSC:	185
INS SAMARTHAK — FIRST INDIGENOUS MULTI-PURPOSE VESSEL OF INDIAN NAVY DELIVERED	186
EASY EXPLANATION	186
KEY TERMS:	186
IMPORTANT POINTS FOR UPSC:	187
INDIA-KUWAIT JOINT DEFENCE COMMITTEE — INAUGURAL MEETING	188
EASY EXPLANATION	188
KEY TERMS:	188
IMPORTANT POINTS FOR UPSC:	189
DEFENCE EXPORT SOP + OPEN GENERAL EXPORT LICENCE — SIMPLIFIED FOR INDIAN INDUSTRY	190
EASY EXPLANATION	190
KEY TERMS:	190
IMPORTANT POINTS FOR UPSC:	191
INDIA-JAPAN: PIYUSH GOYAL'S TOKYO VISIT — SEMICONDUCTORS, AI, INVESTMENT	192
EASY EXPLANATION	192
KEY TERMS:	192
IMPORTANT POINTS FOR UPSC:	193
INDIA-CAMBODIA JOINT WORKING GROUP ON TRADE AND INVESTMENT — 3RD MEETING, PHNOM PENH	194
EASY EXPLANATION	194
KEY TERMS:	194
IMPORTANT POINTS FOR UPSC:	195
INDIA-MOROCCO 7TH JOINT COMMISSION — JITIN PRASADA CO-CHAIRS IN RABAT.....	196
EASY EXPLANATION	196
KEY TERMS:	196
IMPORTANT POINTS FOR UPSC:	197
CSIR-NAL UNVEILS INDIGENOUS MICRO AND SMALL GAS TURBINE ENGINES FOR UNMANNED SYSTEMS	198
EASY EXPLANATION	198
KEY TERMS:	198
IMPORTANT POINTS FOR UPSC:	199





SOUTH ASIAN GUT MICROBIOME — UNIQUE CHARACTERISTICS CRITICAL FOR LIFESTYLE DISEASE TREATMENT	200
EASY EXPLANATION	200
KEY TERMS:	200
IMPORTANT POINTS FOR UPSC:	201
ALZHEIMER'S DISEASE — SMART TECHNOLOGY MAKES DIAGNOSIS MORE ACCESSIBLE	202
EASY EXPLANATION	202
KEY TERMS:	203
IMPORTANT POINTS FOR UPSC:	204
INDIA RESTORED 21.76 MILLION HA OF LAND (2011-2020) — 1.22 BILLION PERSON-DAYS AT UNCCD COP17	204
EASY EXPLANATION	204
KEY TERMS:	205
IMPORTANT POINTS FOR UPSC:	206
COMMUNITY-LED RANGELAND RESTORATION AT UNCCD COP17 — INDIA'S CALL.....	206
EASY EXPLANATION	206
KEY TERMS:	207
IMPORTANT POINTS FOR UPSC:	208
UPI COMPLETES 10 YEARS — WORLD'S LARGEST REAL-TIME PAYMENT SYSTEM	208
EASY EXPLANATION	208
KEY TERMS:	209
IMPORTANT POINTS FOR UPSC:	210
PM JAN DHAN YOJANA — 12 YEARS, 53+ CRORE ACCOUNTS, ₹2.3 LAKH CRORE DEPOSITS	210
EASY EXPLANATION	210
KEY TERMS:	211
IMPORTANT POINTS FOR UPSC:	212
CRITICAL MINERALS INNOVATION HACKATHON 2026 — MINES MINISTER LAUNCHES	212
EASY EXPLANATION	212
KEY TERMS:	213
IMPORTANT POINTS FOR UPSC:	214
GNANI ARTHA — VICE PRESIDENT LAUNCHES INDIA'S SOVEREIGN AI STACK (EVON 3.3 + PLEXUS)	214
EASY EXPLANATION	214
KEY TERMS:	215
IMPORTANT POINTS FOR UPSC:	216
PARIVARTAN SCHEME — EV FINANCING FOR COMMERCIAL VEHICLE OWNERS, DELHI-NCR	216





EASY EXPLANATION	216
KEY TERMS:	217
IMPORTANT POINTS FOR UPSC:	218
 MALARIA ELIMINATION — INDIA REVIEWS PROGRESS TOWARD 2030 TARGET	218
 EASY EXPLANATION	218
KEY TERMS:	218
IMPORTANT POINTS FOR UPSC:	220
 IIP GROWTH 6.7% IN JULY 2026 — MANUFACTURING LEADS	220
 EASY EXPLANATION	220
KEY TERMS:	221
IMPORTANT POINTS FOR UPSC:	222
 PIB BACKGROUNDER — NUCLEAR ENERGY TECHNOLOGY IN INDIA.....	222
 EASY EXPLANATION	222
KEY TERMS:	223
IMPORTANT POINTS FOR UPSC:	224
 PIB BACKGROUNDER — INDIA'S SUGAR INDUSTRY: ETHANOL, FARMER INCOME, EXPORT POLICY	224
 EASY EXPLANATION	224
KEY TERMS:	225
IMPORTANT POINTS FOR UPSC:	226
 PIB BACKGROUNDER — NADCP (NATIONAL ANIMAL DISEASE CONTROL PROGRAMME) + REGENERATIVE AGRICULTURE.....	226
 EASY EXPLANATION	226
KEY TERMS:	227
IMPORTANT POINTS FOR UPSC:	228
 HONORARY MENTIONS	229
 PRACTICE QUESTIONS	235
 10 PRELIMS QUESTIONS	235
2 MAINS QUESTIONS WITH MODEL ANSWERS.....	237
PRELIMS ANSWERS & EXPLANATIONS	239

GOBARdhan — Rs 23,731 CRORE NATIONAL UNIFIED SCHEME FOR COMPRESSED BIOGAS

Ministry: Ministry of Petroleum & Natural Gas / Ministry of New and Renewable Energy



| Click to Connect Now.



PIB Date: 6th August 2026

Easy Explanation

Every day, India generates approximately 60 crore kg of animal dung, 50 crore kg of agricultural residue, and millions of tonnes of municipal solid waste and sewage sludge. For most of India's history, this organic waste was either dumped, burned in fields (a major cause of stubble burning pollution in Punjab and Haryana), or left to decompose – releasing methane, a greenhouse gas 80 times more potent than CO₂ over a 20-year period, directly into the atmosphere. Biogas technology changes this: organic waste is fed into an airtight digester where anaerobic bacteria break it down, producing biogas (60-70% methane, 30-40% CO₂). When this biogas is further purified and compressed, it becomes Compressed Biogas (CBG) – a fuel chemically identical to Compressed Natural Gas (CNG) that can run vehicles, generate electricity, or be fed into gas pipelines. The residue left after digestion is slurry rich in nitrogen, phosphorus, and potassium – a high-quality organic fertiliser that reduces farmers' chemical fertiliser bill. The Cabinet on August 6 approved GOBARdhan – Galvanising Organic Bio-Agro Resources Dhan – as India's National Unified Scheme for Compressed Biogas, with an outlay of Rs 23,731 crore. This consolidates and scales up all existing biogas initiatives under one umbrella, targeting 5,000 CBG plants by 2030 with an aggregate CBG production capacity of 15 million metric tonnes per year – enough to meet 10-15% of India's natural gas demand domestically, replacing that much LNG import.

Key Terms:

Term	Definition
GOBARdhan	Galvanising Organic Bio-Agro Resources Dhan; Rs 23,731 crore Cabinet-approved national CBG scheme; targets 5,000 CBG plants by 2030; 15 MMT CBG production capacity
CBG (Compressed Biogas)	Biogas (from anaerobic digestion of organic waste) purified and compressed; chemically equivalent to CNG; can be used in CNG vehicles, gas pipelines, power generation without modification
Anaerobic Digestion	Breakdown of organic matter by bacteria in absence of oxygen; produces biogas (methane + CO ₂) and digestate (organic fertiliser); core process in CBG plants
SATAT Scheme	Sustainable Alternative Towards Affordable Transportation; 2018 MoPNG scheme for CBG; oil marketing companies (IOC, BPCL, HPCL) commit to buying CBG from plants; GOBARdhan supersedes and scales SATAT
Digestate / Bio-slurry	Organic residue after anaerobic digestion; contains nitrogen, phosphorus, potassium in plant-available form; superior to raw dung as fertiliser; reduces farmer's urea and DAP expenditure



| Click to Connect Now.



Stubble burning link	Punjab, Haryana, UP farmers burn 60 million tonnes of paddy stubble annually; major cause of Delhi's winter AQI crisis; GOBARDhan CBG plants can use paddy straw as feedstock – eliminating burning incentive
15 MMT CBG target	15 million metric tonnes of CBG by 2030; India's natural gas consumption is ~65 BCM/year; 15 MMT CBG = ~10-15% domestic substitution; reduces LNG import bill by Rs 40,000-60,000 crore annually

Important Points for UPSC:

- GOBARDhan's three-in-one benefit: Energy (CBG replaces imported LNG), Environment (prevents methane release from open waste dumps; eliminates stubble burning), and Economy (farmer income from selling dung + biogas + fertiliser – literal gold from gobar)
- Feedstock diversity: Cattle dung (2 kg dung → 1 m³ biogas), poultry litter, press mud from sugar mills, MSW organic fraction, paddy straw, vegetable market waste, sewage sludge – India has more feedstock than any other country for biogas
- SATAT to GOBARDhan evolution: SATAT (2018) set the framework – OMCs buy CBG from plants; but only 400+ plants were set up vs 5,000 target in 7 years; GOBARDhan adds capital subsidy (Rs 1 crore/plant for small plants), technical support, and aggregation infrastructure
- One Nation One Gas Grid link: India's gas pipeline network (GAIL, IGL) is being expanded under One Nation One Gas Grid; CBG plants connected to this grid can feed into the national gas distribution network – city gas distribution companies can mix CBG with natural gas
- Circular economy model: Animal waste → CBG (energy) + bio-fertiliser (replaces urea/DAP) + CO₂ (sold to food & beverage, greenhouse farming industry) – zero-waste production model; every output has a market
- Women SHG connection: Small biogas units (family-size, 2-6 m³) provide clean cooking fuel to rural households; Ministry of Women targeting SHG women as plant operators in GOBARDhan – connects to Lakhpati Didi programme
- Climate NDC link: India committed to 45% reduction in emissions intensity of GDP by 2030 (updated NDC); CBG's methane capture from agricultural waste is a direct emissions reduction; GOBARDhan is simultaneously an energy security and climate commitment instrument
- PMMSY + GOBARDhan: Fish and poultry processing waste is a high-methane-yield feedstock; GOBARDhan plants co-located with PMMSY fisheries clusters can use fish waste – connecting Blue Economy and Clean Energy agendas





INVENTORY-BASED CROSS-BORDER E-COMMERCE EXPORT FRAMEWORK — FTP 2023

Ministry: Ministry of Commerce & Industry / DGFT

PIB Date: 5th August 2026

Easy Explanation

India has 6 crore MSMEs that make products – from handloom sarees and carved wooden toys to Ayurvedic supplements and handmade jewellery – that have global buyers waiting for them on Amazon, eBay, Etsy, and other international e-commerce platforms. The problem: exporting through e-commerce has been legally and logistically complicated. When an MSME sends a single saree to a buyer in the UK via courier, it technically triggers the same export documentation as a factory sending a container – customs, GST refund claims, foreign exchange realisation declarations – processes designed for bulk exporters, not artisans sending individual parcels. The result: most small exporters either operate informally (no GST refund, no export credit) or give up entirely. The DGFT this week notified India's first Inventory-based Cross-border E-Commerce Export Framework under Foreign Trade Policy 2023. The framework creates a new legal category – 'E-Commerce Export Entities (ECEE)' – and allows them to: pre-position inventory at bonded warehouses in foreign countries (inventory-based model, not just order-by-order courier); use a simplified electronic customs process specifically designed for individual parcels; claim faster IGST refunds through a dedicated pathway; and receive foreign exchange through escrow accounts with recognized payment aggregators (Razorpay, PayU, Stripe). This is how countries like China and Vietnam have enabled their millions of small manufacturers to sell directly to global consumers – India is building the equivalent framework.

Key Terms:

Term	Definition
ECEE (E-Commerce Export Entity)	New legal category under FTP 2023 framework; company authorised to export goods through e-commerce platforms; eligible for simplified customs, faster IGST refund, bonded warehouse use abroad
Inventory-based model	Exporter pre-positions goods in a bonded warehouse in the destination country; when an online order is placed, goods are shipped from that warehouse – faster delivery, better customer experience vs order-by-order courier
Bonded Warehouse	A warehouse where imported goods are stored without paying customs duty until they are sold/cleared; allows exporters to hold inventory in foreign markets without upfront duty payment



| Click to Connect Now.



FTP 2023 (Foreign Trade Policy 2023)	India's current 5-year trade policy framework; launched April 2023; introduced Amnesty Scheme for export obligation defaults, Towns of Export Excellence, e-commerce export facilitation
IGST Refund	E-commerce exports attract zero GST (zero-rated); exporters pay IGST on inputs and claim refund on export; ECEE framework creates a dedicated fast-track IGST refund pathway reducing refund time from months to weeks
Courier Export Simplification	India's courier exports (door-to-door parcels) previously required the same complex paperwork as bulk cargo; FTP 2023 framework creates simplified e-AWB (Air Waybill) based clearance for individual parcels
China's e-commerce export model	China's Alibaba/AliExpress model: millions of small manufacturers sell directly to global consumers; China set up 105 cross-border e-commerce zones with bonded warehouses; India's ECEE framework is modelled on this

Important Points for UPSC:

- India's e-commerce exports: Currently \$3-4 billion annually; potential estimated at \$20-25 billion by 2030; China's cross-border e-commerce exports are \$340 billion – India has significant catch-up potential with the right policy framework
- MSME beneficiaries: 6 crore MSMEs; handicrafts, handloom, Ayurveda products, food processing, leather goods – all have international demand but lack the export infrastructure; ECEE framework specifically designed for these small producers
- Artisan-to-global consumer: A Kalamkari artisan in Machilipatnam (AP) can list on Etsy, store inventory at a bonded warehouse in the UK (pre-positioned before orders), sell to a UK buyer, and receive payment through Razorpay escrow in 2-3 days – previously this process took 30-45 days and multiple intermediaries
- GI-tagged products: India has 600+ GI tags; GI-tagged products command 20-50% premium in international markets; ECEE framework combined with GI-tagged branding creates a premium export pipeline for traditional crafts
- RBI linkage: Foreign exchange from e-commerce exports must be repatriated within specified time (currently 9 months for goods); ECEE framework aligns with RBI's FEMA regulations while simplifying the payment receipt process through recognized aggregators
- Razorpay/Stripe escrow model: Payment aggregators (PA) hold payments in escrow; foreign buyers pay in USD/GBP/EUR; PA converts and credits INR to Indian MSME account; RBI has defined a regulatory framework for cross-border payment aggregators specifically for this use case





- Towns of Export Excellence: FTP 2023 designated 40 Towns of Export Excellence (ToEE) – clusters with high export potential (Tiruppur for knitwear, Moradabad for brassware, Agra for leather etc.); ECEE framework gives ToEE artisans the last-mile export infrastructure

AGNI-4 BALLISTIC MISSILE – SUCCESSFUL TEST-FIRE

Ministry: Ministry of Defence / DRDO / SFC

PIB Date: 6th August 2026

Easy Explanation

On the night of August 5-6, 2026 – the eve of the 81st anniversary of the Hiroshima atomic bombing – India conducted a successful test-fire of the Agni-4 ballistic missile from the Abdul Kalam Island (formerly Wheeler Island) integrated test range off Odisha's coast. The timing, whether deliberate or coincidental, carries symbolic resonance: India tests its nuclear-capable delivery system on the date that marks humanity's first use of nuclear weapons in war, reaffirming its strategic deterrence posture. The Agni-4 is a two-stage solid-fuel intermediate-range ballistic missile (IRBM) with a range of approximately 4,000 km, capable of carrying a nuclear warhead. Its range puts all of China's major cities – Beijing (3,800 km from Andaman Islands), Shanghai (3,200 km from eastern India), Chengdu (2,500 km) – within strike range. It uses advanced technologies: composite rocket motor (lighter than steel, withstands extreme temperatures), a ring laser gyroscope for navigation (highly accurate inertial guidance), and a manoeuvrable re-entry vehicle (MaRV) that can alter its trajectory in the terminal phase to evade missile defence systems. The Strategic Forces Command (SFC) – the tri-services command responsible for India's nuclear arsenal – conducted this test as a routine user training exercise, not a development test. This distinction matters: routine SFC tests demonstrate that the weapon system is fully inducted, operational, and in the hands of trained military personnel, not just a developmental prototype under DRDO's control.

Key Terms:

Term	Definition
Agni-4	Two-stage solid-fuel IRBM; range ~4,000 km; nuclear-capable; ring laser gyroscope navigation; MaRV terminal manoeuvre; inducted into Strategic Forces Command
IRBM (Intermediate-Range Ballistic Missile)	Ballistic missile with range 3,000-5,500 km; between MRBM (1,000-3,000 km) and ICBM (5,500+ km); Agni-4 is India's most capable deployed IRBM
Strategic Forces Command (SFC)	Tri-services command responsible for India's nuclear arsenal; under Nuclear Command Authority (NCA); NCA is chaired by PM; SFC conducts operational deployment and routine tests of inducted missiles



| Click to Connect Now.



Ring Laser Gyroscope (RLG)	Inertial navigation device using laser beams to measure rotation; highly accurate, no moving parts; gives Agni-4 precise guidance without GPS (which can be jammed or denied in conflict)
MaRV (Manoeuvrable Re-entry Vehicle)	Warhead that can alter trajectory during terminal descent; makes interception by missile defence systems (like China's HQ-19 or US THAAD) significantly harder; key capability of Agni-4
Abdul Kalam Island	Formerly Wheeler Island; off Odisha coast in Bay of Bengal; India's primary ballistic missile test range; renamed after Dr APJ Abdul Kalam (2015) – 'Missile Man of India'
India's No First Use policy	India commits to not using nuclear weapons first; will retaliate massively if attacked with nuclear weapons; Agni-4 is part of India's credible minimum deterrence – capability to survive a first strike and retaliate

Important Points for UPSC:

- Agni missile family: Agni-1 (700 km, army tactical) → Agni-2 (2,000 km, Pakistan range) → Agni-3 (3,000 km) → Agni-4 (4,000 km, China range) → Agni-5 (5,000+ km, ICBM class) → Agni-Prime (compact 2,000 km) – progressive capability ladder
- China deterrence dimension: India's credible nuclear deterrence against China required missiles with 4,000+ km range; Agni-4 covers all Chinese cities from Indian territory; Agni-5 extends this to Europe – India's nuclear posture has a China-specific component
- Nuclear Command Authority (NCA): PM is the political head; NCA has a Political Council (PM + senior Cabinet ministers) and an Executive Council (NSA chairs); SFC is the operational arm; this test is authorised by NCA
- Solid fuel advantage: Agni-4 uses solid propellant (unlike liquid-fuel missiles that need to be fuelled before launch); solid-fuel missiles can be stored launch-ready for years; faster launch time; more mobile (road-mobile TEL – Transporter Erector Launcher)
- Routine SFC test significance: When SFC (not DRDO) conducts a test, it means the system is fully inducted and troops are trained on it; this is qualitatively different from a development test – it signals operational readiness, not just technical demonstration
- Hiroshima anniversary context: August 6, 1945 – USA dropped 'Little Boy' uranium bomb on Hiroshima (70,000 killed immediately); India's test on this date is a reminder that nuclear deterrence, not nuclear use, is India's doctrine – the contrast is between deterrence and the horror of Hiroshima
- Pakistan vs China deterrence: Agni-1 and Agni-2 cover Pakistan; Agni-4 and Agni-5 are specifically China-oriented; India maintains a two-vector nuclear deterrence architecture – unique among nuclear states in facing two nuclear-armed adversaries simultaneously





DSC A24 — FIFTH DIVING SUPPORT CRAFT LAUNCHED

Ministry: Ministry of Defence / Indian Navy

PIB Date: 1st August 2026

Easy Explanation

We covered INS Nipun (Diving Support Vessel, Week 9) and INS Machilipatnam (ASW SWC, Week 9). This week adds another vessel to India's growing underwater warfare and support capability: DSC A24 (Yard 329) – the fifth ship of the Diving Support Craft (DSC) project – was launched at a shipyard. It is important to distinguish a Diving Support Craft (DSC) from a Diving Support Vessel (DSV) like INS Nipun. A DSV is a large, ocean-going vessel capable of supporting saturation diving at 300 metres depth and deploying Remotely Operated Vehicles for deep-sea operations. A DSC is smaller – designed for harbour, coastal, and shallow-water diving operations: mine clearance, underwater hull inspection, wreck surveys, and salvage in ports and near-shore areas. India's DSC project covers 8 vessels in total – small, highly manoeuvrable craft that can work inside naval harbours (Mumbai, Visakhapatnam, Kochi, Port Blair) where a large DSV cannot operate. With 5 of 8 now launched, the programme is progressing well and reflects the same acceleration in indigenous naval shipbuilding seen across multiple classes this year. The DSCs are built by an Indian shipyard under 'Make in India' defence procurement, with diving equipment indigenised by DRDO's Naval Physical Oceanographic Laboratory (NPOL) in Kochi.

Key Terms:

Term	Definition
DSC (Diving Support Craft)	Small vessel for harbour and coastal diving operations: mine clearance, hull inspection, port salvage; different from DSV (large deep-sea vessel); 8 craft total in this programme
DSV vs DSC distinction	DSV (INS Nipun): large, ocean-going, supports saturation diving at 300 m, ROV deployment; DSC: small, harbour-based, supports shallow-water diving to 50-80 m depth – complementary capabilities
Mine Clearance Diving	Underwater removal or neutralisation of naval mines; requires specialised diving equipment; DSC provides the platform and support for mine clearance divers – critical for port security
NPOL (Naval Physical Oceanographic Laboratory)	DRDO lab in Kochi; develops underwater systems – sonar, diving equipment, underwater vehicles; indigenised the diving equipment used on India's DSC fleet



| Click to Connect Now.



Hull Inspection	Routine inspection of a ship's underwater hull for damage, fouling (marine growth), corrosion; DSC supports divers who inspect hulls in port without requiring dry-docking – saves time and cost
Yard 329	Build number of DSC A24 at the shipyard; naval vessels are tracked by yard numbers during construction; 'A24' is the hull classification number assigned by Indian Navy
8-craft DSC programme	Total 8 Diving Support Crafts ordered; 5 launched so far; programme is under the Indian Navy's plan to fully indigenise harbour and coastal diving support capability

Important Points for UPSC:

- India's underwater domain: India operates 15-16 submarines, 100+ major surface combatants, and multiple port complexes; each port needs diving support for routine maintenance, salvage, and mine threat response – DSC fleet directly supports this
- Naval indigenisation scorecard 2026: INS Nipun (DSV-2), INS Machilipatnam (ASW SWC-7), DSC A24 (DSC-5), INS Malvan (Week 8) – India commissioning or launching a new naval vessel almost every fortnight; unprecedented peacetime naval construction pace
- Mine warfare relevance: Pakistan Naval Ship PNS Khalid has been fitted with anti-ship mines; China's PLAN has deployed sea mines in contested waters; India's DSC fleet provides the defensive mine clearance capability that protects India's naval ports from mining operations
- DRDO NPOL indigenisation: India previously imported diving equipment from France (Compagnie Maritime d'Expertises) and UK; NPOL's indigenised diving systems used on DSC fleet = end-to-end Atmanirbhar underwater support capability
- Port security angle: Post-26/11 (Mumbai terrorist attack came by sea), India massively upgraded maritime security; DSC's hull inspection role directly supports port security – detecting limpet mines or sabotage devices attached to ships' hulls by underwater attackers

GAGANYAAN + BHARATIYA ANTARIKSH STATION — PARLIAMENTARY QUESTION MILESTONES

Ministry: Department of Space / ISRO

PIB Date: 5th August 2026

Easy Explanation

Monsoon Session Parliamentary Questions on space this week produced a comprehensive status update on India's two most ambitious human spaceflight programmes – Gaganyaan and the Bharatiya Antariksh Station (BAS).



| Click to Connect Now.



Minister of State Dr Jitendra Singh addressed Rajya Sabha with the latest milestones, which together paint a picture of India's human space programme moving from aspiration to engineering reality. **Gaganyaan**: India's first human spaceflight mission. The Crew Module (CM) and Service Module (SM) have both completed their qualification tests. The four Gaganauts (Mission: Shubhanshu Shukla, Prashanth Nair, Ajit Krishnan, Angad Pratap) completed their training in Russia and are undergoing mission-specific training at ISRO's Human Space Flight Centre (HSFC) in Bengaluru. The first uncrewed test flight (G1) with the Crew Escape System (CES) demonstrated payload went smoothly. The crewed mission is targeted for 2026-27. **Bharatiya Antariksh Station (BAS)**: India's own space station, to be built in Low Earth Orbit (LEO) by 2035. The BAS architecture was approved – a modular design starting with a 20-tonne initial module, expandable to 52 tonnes. The Space Venture Capital Fund (VC Fund for space startups) was also discussed – Rs 1,000 crore fund established to support private space companies building technologies for BAS components, reducing ISRO's development burden.

Key Terms:

Term	Definition
Gaganyaan	India's first human spaceflight mission; 3-day LEO mission; LVM-3 launch vehicle; 4 trained Gaganauts; crewed mission targeted 2026-27; Crew Module and Service Module qualification tests complete
Bharatiya Antariksh Station (BAS)	India's own space station; LEO orbit; modular design; first 20-tonne module; expandable to 52 tonnes by 2035; to host Indian and partner-nation astronauts for extended stays
Gaganauts	India's astronauts for Gaganyaan: Gp Capt Shubhanshu Shukla, Gp Capt Prashanth Nair, Gp Capt Ajit Krishnan, Gp Capt Angad Pratap; all IAF test pilots; trained at Gagarin Cosmonaut Training Centre, Russia
Crew Escape System (CES)	Emergency system that separates the Crew Module from the rocket in case of a launch abort; tested successfully in CES pad-abort test; critical safety system – analogous to ejection seat on a fighter jet
HSFC (Human Space Flight Centre)	ISRO's dedicated centre in Bengaluru for human spaceflight; manages Gaganauts training, Crew Module development, mission control for Gaganyaan and future BAS operations
Space VC Fund	Rs 1,000 crore venture capital fund for space startups; IN-SPACe manages; first of its kind in India; funds companies building launch vehicles, satellite components, space habitats – private sector contribution to BAS



**LEO (Low Earth Orbit)**

Orbit 200-2,000 km above Earth; ISS is at 408 km; Gaganyaan crewed mission targets 400-450 km; BAS will orbit at similar altitude; most commercial and scientific satellites are in LEO

Important Points for UPSC:

- Gaganyaan timeline: ISRO ATV (unmanned tech demonstrator) completed → CES pad-abort test completed → G1 uncrewed mission (with humanoid robot Vyommitra) → crewed mission (2026-27 target) → sustained human spaceflight programme
- LVM-3 (Launch Vehicle Mark-3): India's heaviest rocket; 43.5 m tall; 640 tonne lift-off mass; 8 tonne payload to LEO; previously called GSLV Mk III; launched OneWeb satellites commercially; will launch Gaganyaan crew
- India's space station rationale: ISS is retiring by 2030 (NASA confirmed); China has its own Tiangong station (operational since 2022); without BAS, India would have no access to space station science after 2030; BAS is a sovereign solution
- Shubhanshu Shukla's ISS mission: Before Gaganyaan, ISRO's Shubhanshu Shukla is scheduled to visit the ISS as a mission specialist on Axiom Space's Ax-4 commercial mission – India's first astronaut on ISS; experience feeds back into Gaganyaan preparation
- Parliamentary update significance: PM questions (PQs) on Gaganyaan are a UPSC source for specific technical data – Crew Module mass, number of Gaganauts, mission duration (3 days), target orbit (400-450 km LEO), life support system specifics
- BAS international partnerships: Japan (JAXA), France (CNES), UAE, and Brazil have expressed interest in BAS partnership; India follows ISS model – partner nations contribute modules or experiments in exchange for crew time on BAS
- Space VC Fund deployment: First investments from the Rs 1,000 crore Space VC Fund announced – Skyroot Aerospace (Vikram-1 success, Week 8), Agnikul Cosmos, Bellatrix Aerospace, and Pixxel (earth observation satellites) are among startups receiving funding

PFBR + BHARAT SMALL MODULAR REACTORS – NUCLEAR ROADMAP TO 2047

Ministry: Department of Atomic Energy

PIB Date: 5th August 2026

Easy Explanation

Parliamentary Questions on nuclear energy this week provided the most comprehensive public update on India's nuclear programme in recent memory, covering three parallel tracks: the Prototype Fast Breeder Reactor (PFBR), Bharat Small Modular Reactors (SMRs), and the Nuclear Energy Mission 2047. India's 3-stage nuclear programme – designed by Dr Homi Bhabha in the 1950s – was conceived for a country with large thorium deposits but limited



| Click to Connect Now.



uranium. Stage 1: Pressurised Heavy Water Reactors (PHWRs) use natural uranium and produce plutonium as a byproduct. Stage 2: Fast Breeder Reactors (FBRs) use the Stage 1 plutonium as fuel and 'breed' more plutonium than they consume, while also converting thorium into fissile Uranium-233. Stage 3: Advanced Heavy Water Reactors (AHWRs) use the Uranium-233 + thorium fuel cycle – making India essentially energy-independent using its own thorium reserves. The PFBR at Kalpakkam, Tamil Nadu – India's first fast breeder reactor – is the critical gateway to Stage 2. Parliament was informed it is in its 'pre-criticality' phase, with criticality (first nuclear chain reaction) expected in 2026-27. On SMRs: Bharat Small Modular Reactors are compact nuclear reactors (less than 300 MW each, vs 700-1,000 MW for conventional reactors) designed by BARC. They can be factory-manufactured and deployed quickly at industrial sites, remote areas, or islands – a game-changer for India's 100,000 MW nuclear target by 2047.

Key Terms:

Term	Definition
PFBR (Prototype Fast Breeder Reactor)	500 MW FBR at Kalpakkam, Tamil Nadu; BHAVINI operates; uses plutonium fuel; breeds more plutonium + converts thorium to U-233; India's Stage 2 gateway; pre-criticality phase as of August 2026
Fast Breeder Reactor (FBR)	Nuclear reactor that uses fast neutrons (not moderated); breeds more fissile material than it consumes; closed fuel cycle; reduces nuclear waste; India's Stage 2 technology
SMR (Small Modular Reactor)	Nuclear reactor <300 MW; factory-built, modular, deployable at diverse locations; lower upfront cost than large reactors; Bharat SMR designed by BARC; target: industrial heat + electricity
BARC (Bhabha Atomic Research Centre)	India's premier nuclear research centre; Trombay, Mumbai; designs reactors, develops nuclear fuel, conducts weapons-related research; developed the Bharat SMR design
BHAVINI	Bharatiya Nabhikiya Vidyut Nigam Limited; Chennai; PFBR operator; subsidiary of DAE; will also operate future fast breeder reactors in the Stage 2 programme
Thorium	India has world's 3rd largest thorium reserves (846,000 tonnes); coastal monazite sands of Kerala, Tamil Nadu; cannot be used directly as nuclear fuel but converts to U-233 in fast reactors – making it India's long-term energy source
Nuclear Energy Mission 2047	India's target: 100,000 MW nuclear capacity by 2047 (Viksit Bharat); current capacity: 7,480 MW (24 reactors); requires massive





scale-up; SMRs + new large PHWRs + FBRs + AHWRs all part of the pathway

Important Points for UPSC:

- India's 3-stage nuclear programme uniqueness: Designed specifically for thorium utilisation (no other country has this 3-stage architecture); Stage 1 PHWRs → Stage 2 FBRs → Stage 3 AHWRs; PFBR is the hinge between Stage 1 and Stage 2 – it is the most critical nuclear project India has
- PFBR criticality significance: 'Going critical' means achieving a self-sustaining nuclear chain reaction for the first time; PFBR criticality in 2026-27 would make India only the 6th country to operate a fast breeder reactor (Russia, France, Japan, China, India) – a major nuclear technology milestone
- SMR advantages: Conventional large reactors (700+ MW) require Rs 15,000-20,000 crore investment, 10-15 years to build; Bharat SMR (100-300 MW) can be factory-built in 3-4 years, deployed at industrial campuses (for process heat + power), remote mining sites, or coastal areas where grid connection is difficult
- 100,000 MW by 2047: India currently has 7,480 MW nuclear (3% of electricity); target 100,000 MW by 2047 = 13x increase in 21 years; requires commissioning a new nuclear reactor approximately every 3 months for 21 years – extraordinary ambition requiring both large reactors and SMRs
- Civil nuclear diplomacy: India's civil nuclear agreements with USA (2008), Russia (ongoing), France (Jaitapur EPRs), Australia (uranium, Week 7) all feed into this 100,000 MW target; PFBR success will make India an exporter of FBR technology to other countries seeking to use their thorium reserves
- Radiation safety Parliament Q: DAE also answered a PQ on Collision Avoidance Manoeuvres (CAMs) executed by ISRO satellites – 19 CAMs in 2025-26 to avoid debris; India is also developing a Space Situational Awareness (SSA) programme
- Nuclear waste management: Fast breeders significantly reduce nuclear waste volume compared to conventional reactors (they burn the long-lived actinides that make conventional waste dangerous for millennia); Stage 2 FBRs are thus also waste management instruments

PM E-DRIVE — Rs 2,000 CRORE FOR EV CHARGING INFRASTRUCTURE NATIONWIDE

Ministry: Ministry of Heavy Industries

PIB Date: 4th August 2026

Easy Explanation

The single biggest barrier to EV adoption in India is not the vehicle's upfront cost (which is falling rapidly) but range anxiety – the fear of running out of charge with no charging station nearby. A petrol car driver is never more than a few kilometres from a fuel station anywhere in urban India. An EV driver in most Indian cities is never



| Click to Connect Now.



sure. India has approximately 12,000 public EV charging stations today – compared to China's 9 million, USA's 160,000, and Europe's 500,000. The Parliamentary Question response this week confirmed the PM E-DRIVE Scheme's allocation of Rs 2,000 crore specifically for EV Public Charging Stations (EVPCS) on a pan-India basis. PM E-DRIVE (Electric Drive Revolution in Innovative Vehicle Enhancement) was announced in September 2024 with a total outlay of Rs 10,900 crore covering: e-buses for state transport (9,000 buses), e-ambulances (500), e-trucks pilot, and this EVPCS component. The Rs 2,000 crore EVPCS allocation targets: 22,100 fast chargers at highways (every 25 km on national highways), 48,400 chargers at city locations (parking lots, malls, residential complexes), and 1,800 chargers at bus depots for the e-bus fleet. The scheme also mandates interoperability – any EV, regardless of brand or connector type (CCS2, CHAdeMO, Type 2), must be able to charge at any PM E-DRIVE funded station, ending the fragmentation that currently plagues India's charging ecosystem.

Key Terms:

Term	Definition
PM E-DRIVE Scheme	Electric Drive Revolution in Innovative Vehicle Enhancement; Rs 10,900 crore total; covers 9,000 e-buses, 500 e-ambulances, EV charging infrastructure; September 2024 launch
EVPCS (EV Public Charging Station)	Public EV charging station; PM E-DRIVE allocates Rs 2,000 crore for 70,000+ new EVPCS across highways, cities, and bus depots
Range Anxiety	Fear of running out of EV battery charge before reaching a charging station; primary psychological barrier to EV adoption; dense charging network directly addresses this
Fast Charger (DC)	DC fast charger delivers 50-150 kW; charges an EV from 20% to 80% in 30-45 minutes; PM E-DRIVE specifies fast chargers on national highways for long-distance EV travel
Interoperability mandate	PM E-DRIVE funded stations must support all major connector standards: CCS2 (European standard, used by Tata Nexon EV), CHAdeMO (Japanese, used by some imports), Type 2 AC (for slow charging); prevents ecosystem fragmentation
FAME II legacy	Faster Adoption and Manufacturing of Hybrid and Electric Vehicles Phase II (Rs 10,000 crore, 2019-2024); subsidised EV purchases; PM E-DRIVE is the successor, shifting focus from purchase subsidy to infrastructure
523 e-buses deployed	As of July 2026, 523 e-buses deployed under PM E-DRIVE's PSM (Payment Security Mechanism) component; targeting 9,000 total;





state transport corporations in Delhi, Bengaluru, Kolkata, Surat are early recipients

Important Points for UPSC:

- India's EV market: 16 lakh EVs sold in 2024-25 (10% of total vehicle sales); target 30% EV penetration by 2030; charging infrastructure is the critical bottleneck – Rs 2,000 crore EVPCS investment aims to add 70,000+ public chargers
- Highway charger economics: A fast charger on NH-48 (Delhi-Mumbai) costs Rs 15-20 lakh to install; recovers cost in 3-4 years at current utilisation; PM E-DRIVE provides viability gap funding for highway chargers where utilisation is currently low but will grow as EV penetration rises
- CAFE-III connection (Week 7): CAFE-III norms (91.7 g CO₂/km by 2027) push auto manufacturers toward EVs; PM E-DRIVE creates the charging infrastructure that makes EVs viable for consumers – supply push (CAFE) + infrastructure pull (PM E-DRIVE) working together
- Private sector co-investment: PM E-DRIVE is designed to 'crowd in' private investment; for every Rs 1 of government EVPCS funding, Rs 3-4 of private charger investment is expected (Tata Power, Ather Energy, ChargePoint, Shell Recharge are all expanding in India)
- Battery swapping: In parallel with fixed charging, India is developing a battery swapping ecosystem (NITI Aayog battery swapping policy 2022); swapping is faster (2 minutes vs 30 minutes for fast charge) but requires standardised battery packs – EVPCS is for fixed charging, swapping is a separate track
- Grid readiness: 70,000 new chargers drawing power simultaneously could stress local distribution grids; Ministry of Power has issued smart charging guidelines – chargers must have smart scheduling (charge at off-peak hours, participate in demand response programmes) to avoid grid stress

GLAW LAKE — ARUNACHAL PRADESH'S FIRST RAMSAR SITE; INDIA'S 101ST

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

PIB Date: 3rd August 2026

Easy Explanation

Glaw Lake – a pristine high-altitude glacial lake tucked in the hills of Arunachal Pradesh's Tawang district – has become the state's first Ramsar Wetland Site and India's 101st. The Ramsar designation is significant on multiple dimensions. First, the number: 101 Ramsar sites makes India the country with the most Ramsar sites in the world – surpassing the UK (175), Bolivia (23), and placing India in a global leadership position in wetland conservation alongside Canada (67) and Russia (71) when measured by the significance of each site. Second, the geography: Glaw Lake is in Tawang – the district that shares a sensitive border with China (the 1962 war's key theatre, and the birthplace of the 6th Dalai Lama). Wetland designation in a sensitive border district creates international documentation of India's sovereign territory and ecological stewardship – a soft sovereignty assertion. Third, the



| Click to Connect Now.



ecology: High-altitude Himalayan wetlands are among the world's most threatened ecosystems. Climate change is melting glaciers that feed these lakes, altering their water levels, and threatening the unique biodiversity they support – including black-necked cranes (a Schedule I species), snow leopards that hunt along lake shores, and rare medicinal plants. India's 101st Ramsar site is also a climate change frontline monitoring station. The Ramsar designation triggers: an obligation to prepare a Wetland Conservation and Management Plan, international reporting to the Ramsar Convention Secretariat in Gland, Switzerland, and eligibility for technical assistance from the Ramsar Small Grants Fund.

Key Terms:

Term	Definition
Ramsar Convention 1971	International treaty on wetland conservation; signed at Ramsar, Iran; India acceded 1982; sites listed are 'Wetlands of International Importance'; 172 contracting parties; 2,494 Ramsar sites globally
Glaw Lake	High-altitude glacial lake; Tawang district, Arunachal Pradesh; India's 101st Ramsar site; state's first; sensitive border region with China; habitat for black-necked crane and snow leopard
India's 101st Ramsar site	India has most Ramsar sites among countries with significant wetland area; 101 sites cover 13.3 lakh hectares; includes mangroves (Sundarbans), high-altitude lakes (Tsomoriri), floodplains, coastal wetlands
Black-necked Crane	<i>Grus nigricollis</i> ; Schedule I species under WPA 1972; winters in Arunachal Pradesh's Sangti and Zemithang valleys near Tawang; breeds on Tibetan Plateau; Glaw Lake is part of its habitat range
Ramsar Montreux Record	List of Ramsar sites where ecological character has changed or is likely to change due to human interference; India's Keoladeo (Rajasthan) and Loktak Lake (Manipur) are on this record – management improvement needed
Wetland Conservation Management Plan (WCMP)	Document required for each Ramsar site; covers threats, conservation actions, monitoring, community engagement; prepares by state government with NWCP support
NWCP (National Wetland Conservation Programme)	MoEFCC scheme for wetland conservation; funds WCMPs, restoration activities, awareness programmes; budget enhanced to accommodate 101 Ramsar sites

Important Points for UPSC:



| Click to Connect Now.



- India's Ramsar journey: 1982 (accession) – 6 sites → 2014 – 26 sites → 2019 – 37 sites → 2022 – 75 sites (Independence Day milestone) → 2026 – 101 sites; dramatic acceleration post-2019 reflects policy priority
- Recent notable Ramsar sites: Karikili Bird Sanctuary (TN), Pallikaranai Marsh (TN), Pichavaram Mangrove (TN) – 3 TN sites added 2022; Sirpur Wetland (MP), Sakya Para Lake (Sikkim), Renuka Wetland (HP) – northern Himalayan sites; Glaw Lake continues the pattern of adding high-altitude Himalayan wetlands
- Black-necked Crane conservation: Critically endangered in India; wintering population of 500-600 in Arunachal Pradesh; Glaw Lake's Ramsar designation triggers dedicated conservation action for this species; connects to India's Project Snow Leopard and broader Himalayan biodiversity conservation
- Climate monitoring: Glacial lakes like Glaw are 'sentinels' of climate change – their water levels, temperature, and ice cover changes directly reflect Himalayan glacier health; Ramsar designation creates obligation for scientific monitoring, generating climate data for IPCC reports
- Tawang sovereignty dimension: Tawang is claimed by China as 'South Tibet'; India's designation of a Ramsar site in Tawang – requiring reporting to an international body that recognises Tawang as Indian territory – is a soft sovereignty assertion through international environmental law
- Wetland-dependent livelihoods: Monpa tribal community in Tawang depends on Glaw Lake and surrounding wetlands for fishing, medicinal plants, and livestock grazing; Ramsar designation's community engagement requirement should benefit Monpa community through conservation-linked livelihoods
- Wetland Atlas of India: Wildlife Institute of India and SAC (Space Applications Centre, ISRO) jointly maintain India's Wetland Atlas using satellite imagery; updated 2021 edition identified 7.7 lakh wetlands covering 4.6% of India's area – Glaw was identified in this atlas as a candidate for Ramsar designation

CLOUDED LEOPARD CONSERVATION ACTION PLAN – INDIA'S DEDICATED CAP FOR A FORGOTTEN CAT

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

PIB Date: 3rd August 2026

Easy Explanation

On International Clouded Leopard Day (August 4), India announced a dedicated Conservation Action Plan (CAP) for the Clouded Leopard – a medium-sized wild cat that most Indians, and most UPSC aspirants, have never heard of. This is precisely the problem. The Clouded Leopard (*Neofelis nebulosa*) is India's fifth-largest wild cat (after tiger, lion, leopard, and snow leopard), a Schedule I protected species under the Wildlife Protection Act 1972, and one of the most evolutionarily distinct felids alive – its lineage split from other big cats 6 million years ago. It is found in the forests of the Northeast (Assam, Meghalaya, Mizoram, Nagaland, Arunachal Pradesh, Sikkim) and in parts of West Bengal's (Dooars). It is the state animal of Meghalaya. Despite all this, it has no dedicated conservation programme – unlike tigers (Project Tiger, 1973), elephants (Project Elephant, 1992), rhinos (Indian



| Click to Connect Now.



Rhino Vision 2020), and snow leopards (Project Snow Leopard). Threats: habitat loss in Northeast India's forests (driven by shifting cultivation, road infrastructure through the Northeast, and plantation expansion), hunting for its spectacularly beautiful spotted fur, and trade in bones (used in traditional medicine as a substitute for tiger bones). The CAP – developed by the Wildlife Institute of India (WII) – covers: habitat connectivity mapping across the Northeast, community-based monitoring using camera traps, anti-poaching coordination with Northeast state forest departments, and ex-situ conservation at Central Zoo Authority zoos.

Key Terms:

Term	Definition
Clouded Leopard (<i>Neofelis nebulosa</i>)	Medium-sized wild cat; 11-23 kg; found in Northeast India, Southeast Asia, South China; Schedule I species under WPA 1972; state animal of Meghalaya; longest canine teeth relative to body size of any living cat
Conservation Action Plan (CAP)	Detailed conservation management document; covers threats, actions, monitoring, budget; India has CAPs for tiger, elephant, rhino, snow leopard, great Indian bustard; Clouded Leopard CAP is the newest addition
Schedule I, WPA 1972	Highest protection category under Wildlife Protection Act 1972; absolute prohibition on hunting; 6 years imprisonment minimum; species listed include tiger, lion, leopard, elephant, rhinoceros, clouded leopard
WII (Wildlife Institute of India)	Autonomous institute under MoEFCC; Dehradun; develops conservation plans, conducts wildlife research, trains forest officers; developed the Clouded Leopard CAP
Northeast India's forests	Clouded Leopard's Indian range: Assam (Kaziranga adjoining forests), Meghalaya, Mizoram, Nagaland, Arunachal Pradesh, Sikkim; Northeast has India's highest biodiversity but also highest deforestation rate
Sunda Clouded Leopard	<i>Neofelis diardi</i> – a separate species found in Borneo and Sumatra; distinct from Indian Clouded Leopard (<i>Neofelis nebulosa</i>); both are endangered; separated as species only in 2006 based on DNA analysis
International Clouded Leopard Day	August 4; established by zoo and conservation community; raises awareness for one of the world's least-known wild cats; India's CAP announcement on this day signals policy commitment





Important Points for UPSC:

- Why this matters for UPSC: UPSC has directly asked about Schedule I species, state animals, and species-specific conservation projects; Clouded Leopard as state animal of Meghalaya + Schedule I species + new CAP = classic UPSC combination question waiting to happen
- Meghalaya state animal: Clouded Leopard is Meghalaya's state animal (as the Asiatic lion is Gujarat's, Snow Leopard is Himachal Pradesh's, Great Indian Bustard is Rajasthan's, Gangetic Dolphin is Bihar's — all UPSC Prelims facts)
- Hunting pressure: Clouded Leopard fur is among the most commercially valuable in the wildlife trade; a single pelt fetches \$10,000-20,000 in illegal markets; Northeast India's porous international borders (Myanmar, Bhutan, Bangladesh) facilitate trafficking
- Camera trap monitoring: India's tiger census methodology (camera trap + pugmark analysis) is being extended to clouded leopards in the Northeast; WII has deployed 500+ camera traps in Assam and Meghalaya — population estimate will be the first scientifically rigorous one for India
- Habitat connectivity: Northeast India's forests are fragmented by National Highways (NH-27, NH-6) and tea gardens; CAP identifies 12 priority corridors for clouded leopard movement between forest patches — same connectivity science used for tiger corridors
- Zoos: Central Zoo Authority zoos (Padmaja Naidu Himalayan Zoological Park, Darjeeling; Assam State Zoo) maintain clouded leopard ex-situ breeding populations; CAP integrates zoo breeding with wild population management — if wild populations collapse, zoo populations provide rescue genetics
- Project Clouded Leopard analogy: The CAP could evolve into a 'Project Clouded Leopard' on the model of Project Tiger and Project Elephant — with dedicated funding, a coordination committee, and conservation reserves; this would be the 6th species-specific flagship conservation project in India

ICAR — INDIGENOUS AFRICAN SWINE FEVER VACCINE: INDIA'S BIOSECURITY BREAKTHROUGH

Ministry: Ministry of Agriculture & Farmers Welfare / ICAR

PIB Date: 4th August 2026

Easy Explanation

African Swine Fever (ASF) is one of the most devastating livestock diseases in the world. It kills pigs with a mortality rate of up to 100% in domestic pig populations — there is no treatment once infected. It is caused by a large DNA virus (ASFV) — the only member of the family Asfarviridae — and is unique in that it infects pigs through direct contact, contaminated feed (including kitchen waste fed to pigs), infected ticks (*Ornithodoros* soft ticks), and fomites (contaminated equipment, clothing, vehicles). ASF reached India in 2020, entering from Myanmar into Arunachal Pradesh and Assam, and has since spread to multiple Northeast states, causing billions of rupees in losses to pig farmers and devastating the pork-based food economy of the Northeast (where pig farming is culturally and



| Click to Connect Now.



economically central – Nagaland, Meghalaya, Mizoram, Arunachal Pradesh are among India's largest pork-consuming states). The critical problem: globally, there is no commercially available vaccine for ASF. Countries affected – China (lost 40% of its pig population in 2018-19), Vietnam, the Philippines, and now India – have had no weapon except culling (killing all pigs in an affected area), which has caused enormous economic losses. ICAR-National Institute of High Security Animal Diseases (NIHSAD) in Bhopal this week announced it has successfully developed India's first indigenous ASF vaccine candidate – a gene-deleted live-attenuated vaccine that provides 80-90% protection in trials. This makes India one of only 3-4 countries in the world to have developed an ASF vaccine candidate.

Key Terms:

Term	Definition
African Swine Fever (ASF)	Viral haemorrhagic disease of pigs; 100% mortality in naive populations; caused by ASFV (Asfarviridae family); no treatment; spreads through contact, contaminated feed, ticks, fomites; not transmissible to humans
ASFV (African Swine Fever Virus)	Large DNA virus; only member of Asfarviridae; 170-190 genes (very complex – makes vaccine development difficult); persists in environment for months; survives in cured pork products
ICAR-NIHSAD	National Institute of High Security Animal Diseases; Bhopal; India's apex centre for research on high-consequence animal pathogens (BSL-3 and BSL-4 level); developed the ASF vaccine candidate
Gene-deleted live-attenuated vaccine	Vaccine made from a living but weakened virus with specific genes removed; gene deletion prevents the virus from causing disease while retaining its ability to stimulate immunity; same technology used for some human vaccines
Culling	Only current control measure for ASF; all pigs in an affected area are killed; prevents spread but causes catastrophic economic loss; ICAR's vaccine would make culling unnecessary
Northeast India pig farming	Nagaland, Meghalaya, Mizoram, Arunachal Pradesh: culturally and economically central pig farming; estimated 18 lakh pigs in Northeast India; ASF has killed 2-3 lakh pigs since 2020; vaccine is existential for this farming community
BSL (Biosafety Level)	Laboratory classification for pathogen safety; BSL-1 (least dangerous) to BSL-4 (most dangerous); ASFV requires BSL-3 lab facilities for research; NIHSAD is one of few Indian labs with BSL-3 capability





Important Points for UPSC:

- Global ASF crisis: China's 2018-19 ASF outbreak killed 40%+ of China's pig population (China has 50% of world's pigs); pork prices in China tripled; ripple effects raised global food prices; Vietnam, Philippines similarly devastated; India's vaccine could be globally transformative
- 3-4 countries with ASF vaccine candidates: USA (USDA's experimental vaccine), Vietnam (AVAC Vietnam's ASF LIVE vaccine, approved 2023), South Korea (KSVR-1), and now India – India joins a very small club of nations that have cracked this vaccine challenge
- Not transmissible to humans: ASFV does NOT infect humans; eating pork from ASF-infected pigs is not a human health risk; yet the disease causes catastrophic economic and food security damage – important distinction for UPSC
- One Health framework: ASF spreads through wild boar → domestic pig → farm to farm; Ornithodoros tick is a wildlife reservoir; controlling ASF requires One Health approach coordinating wildlife management, livestock health, and farm biosecurity – same framework discussed in BRICS Health Ministers' meeting (Week 8)
- Northeast economy: Pig farming provides livelihood to 15+ lakh families in Northeast India; pork is the primary protein source; ASF losses have caused food price inflation in Nagaland, Meghalaya; ICAR's vaccine restores this economic pillar – simultaneously biosecurity and economic development
- NIHSAD's other work: NIHSAD also works on Foot and Mouth Disease (FMD), Nipah virus, Avian Influenza (H5N1, H9N2) – India's primary 'high-security' animal disease research centre; its BSL-3 capability was critical for ASF vaccine development

C-DAC + GEOLOGICAL SURVEY OF INDIA MoU – AI FOR MINERAL EXPLORATION

Ministry: Ministry of Electronics & IT / Ministry of Mines

PIB Date: 4th August 2026

Easy Explanation

The Geological Survey of India (GSI) – established in 1851, making it one of India's oldest scientific institutions – has accumulated 175 years of geological data: field survey reports, rock sample analyses, geophysical measurements, satellite imagery, borehole logs, and mineral potential assessments covering every district of India. This data – stored in paper records, legacy databases, and fragmented digital formats – represents a national treasure that has been chronically underutilised. Finding a mineral deposit in this data requires a geologist to manually compare survey reports, geochemical maps, and geological logs – a task that takes months or years. An AI system trained on this data could identify patterns invisible to human geologists and point to prospective mineral deposits in days. The Centre for Development of Advanced Computing (C-DAC) – India's premier AI and HPC (High Performance Computing) centre – signed an Umbrella MoU with GSI this week to build exactly this: an AI-powered mineral exploration system. The MoU covers three domains: Geoscience AI (machine learning models trained on GSI's 175 years of survey data to predict mineral occurrence probabilities across India's geological



| Click to Connect Now.



formations), Mineral Exploration (AI-directed field surveys – the AI identifies high-probability zones and directs ground teams to verify them), and Disaster Management (using GSI's geological data + C-DAC's modelling capability to predict landslide risk, earthquake damage, and ground subsidence – critical for infrastructure planning in the Himalayas and Northeast).

Key Terms:

Term	Definition
GSI (Geological Survey of India)	Established 1851; India's oldest scientific department; maps India's geology, identifies mineral deposits, provides geohazard assessments; has 175 years of geological data in its archives
C-DAC (Centre for Development of Advanced Computing)	India's premier R&D organisation for advanced computing; develops supercomputers (PARAM series), AI software, cybersecurity systems; under MeitY; developed AI for diverse national applications
Geoscience AI	Machine learning applied to geological datasets – maps, borehole logs, geophysical data, geochemical surveys – to predict mineral occurrence probability; reduces exploration cost and time significantly
PARAM Supercomputer	C-DAC's indigenous supercomputer series; PARAM Siddhi-AI is India's fastest supercomputer; used for weather modelling, drug discovery, AI training; will be used for GSI data processing under this MoU
Critical Minerals exploration	India's Critical Minerals Auction Programme (8 tranches, Week 8-9 context) needs data about where these minerals occur; GSI's AI-powered mineral mapping will identify new critical mineral deposits to auction
Landslide prediction	GSI maps landslide-prone areas; C-DAC's AI can build predictive models using GSI geology + rainfall data + satellite imagery + historical landslide records; critical for Northeast India (highest landslide density in world)
National Geospatial Policy 2022	Liberalised access to India's geospatial data; removed licensing requirements for most mapping; GSI data digitisation + C-DAC AI = powerful combination enabled by this liberal data policy

Important Points for UPSC:





- 175 years of GSI data: GSI has conducted geological surveys since the British era; this data includes surveys that found India's coal deposits, iron ore in Jharkhand, bauxite in Odisha – the foundation of India's mining economy; AI can find what human geologists missed in this archive
- Critical minerals connection: India is auctioning 76+ critical mineral blocks (Week 8-9); but mineral auctions depend on geological surveys identifying prospective blocks; C-DAC-GSI AI will accelerate geological survey data processing, identifying more blocks for future tranches
- Cost of mineral exploration: A traditional mineral exploration programme (geophysical survey + geochemical sampling + drilling) costs Rs 50-200 crore per area; AI-directed exploration targets drilling only in high-probability zones – reducing cost by 60-70%
- Disaster management application: Himachal Pradesh and Uttarakhand landslides (2023, 2024) caused thousands of crore in infrastructure damage; GSI's geological hazard maps + C-DAC AI = proactive identification of high-risk slopes before construction of highways and tunnels – literally life-saving
- Deep Ocean Mission link: Deep Ocean Mission (MoES) is also exploring India's EEZ for polymetallic nodules; GSI + C-DAC AI framework can extend to undersea geological mapping – connecting land mineral exploration AI to ocean floor mineral prediction
- Draghi Report parallel: EU's Draghi Report (2024) on competitiveness specifically cited AI-powered mineral exploration as essential for securing critical minerals; India's C-DAC-GSI MoU is on the same page – strategic alignment with global thinking on critical minerals security

INDIA AT FAIR — CONTRIBUTING CRITICAL EQUIPMENT TO INTERNATIONAL MEGA-SCIENCE

Ministry: Ministry of Science & Technology / DAE / DST

PIB Date: 7th August 2026

Easy Explanation

FAIR – Facility for Antiproton and Ion Research – is one of the most ambitious scientific projects in human history. Being built in Darmstadt, Germany, by an international consortium of 50+ nations, FAIR will be the world's largest and most complex particle accelerator when complete – capable of accelerating heavy ions (atoms stripped of their electrons) to 99% the speed of light and smashing them together to recreate conditions that existed microseconds after the Big Bang. The science that FAIR will conduct: understanding the structure of atomic nuclei, creating exotic forms of matter (quark-gluon plasma – the primordial soup from which protons and neutrons formed), and studying the physics of antimatter (antiprotons). India is one of FAIR's founding partners – not as a passive contributor of funds, but as a technology developer. Indian scientists and engineers have developed critical equipment for FAIR: superconducting solenoid magnets (built by BARC and VECC – Variable Energy Cyclotron Centre, Kolkata), beam diagnostics systems (built by RRCAT – Raja Ramanna Centre for Advanced Technology, Indore), and a significant contribution to the Compressed Baryonic Matter (CBM) experiment detector. This week's PIB confirmed that India has developed and is delivering some of the most technically demanding components in



| Click to Connect Now.



the entire FAIR project – establishing India as a serious contributor to frontier physics infrastructure, not just a beneficiary of global science.

Key Terms:

Term	Definition
FAIR	Facility for Antiproton and Ion Research; Darmstadt, Germany; world's largest heavy-ion accelerator complex under construction; 50+ partner nations; India is a founding partner and technology contributor
Heavy-ion accelerator	Particle accelerator that accelerates fully or partially ionised heavy atoms (like uranium, lead) to near-light speed; FAIR uses these to recreate Big Bang conditions in a controlled laboratory setting
Quark-Gluon Plasma (QGP)	State of matter existing microseconds after Big Bang; at extreme temperature/density, protons and neutrons 'melt' into their constituent quarks and gluons; FAIR will create QGP in laboratory conditions
VECC (Variable Energy Cyclotron Centre)	VECC, Kolkata; DAE institution; builds particle accelerators and radiation equipment; contributed superconducting solenoid magnets to FAIR – some of the most complex magnets ever built in India
RRCAT (Raja Ramanna Centre for Advanced Technology)	Indore; DAE institution; India's laser and accelerator technology centre; contributed beam diagnostics systems to FAIR – sensors that measure the particle beam's properties in real time
CBM (Compressed Baryonic Matter) Experiment	One of FAIR's four major experiments; studies matter under extreme density (as in neutron star cores); India's detector contributions to CBM are among its most significant scientific contributions to FAIR
Science diplomacy	India's FAIR participation builds relationships with Germany (FAIR host), the EU, and 50+ partner nations; scientific collaboration at frontier physics creates trust and expertise networks that have strategic as well as scientific value

Important Points for UPSC:

- India's FAIR investment: India contributes approximately 3% of FAIR's total cost (estimated at €3 billion); proportional to its contribution, India gets beam time – access to FAIR's experiments for Indian scientists; this access has enormous value for India's nuclear physics research





- DAE's international portfolio: India also contributes to CERN (the Large Hadron Collider, Geneva), ITER (nuclear fusion, France), and Square Kilometre Array (SKA, South Africa/Australia) – FAIR is part of India's systematic participation in global mega-science projects
- Superconducting magnets: BARC/VECC's superconducting solenoid magnets for FAIR operate at temperatures near absolute zero (-269 °C); building them requires mastery of cryogenics, superconducting materials, and precision engineering; capabilities directly transferable to India's nuclear and fusion energy programmes
- CERN parallel: India's contribution to CERN's CMS detector (Compact Muon Solenoid) in the 1990s-2000s built a generation of Indian particle physicists; FAIR will do the same for the next generation – scientific return on investment measured in human capital
- Neutron star science: CBM experiment will study compressed baryonic matter – same conditions as inside neutron stars; understanding neutron star physics has direct implications for gravitational wave detection (LIGO-India will be operational in the late 2020s) and fundamental physics
- Make in India defence spillover: Superconducting magnet technology built for FAIR has applications in MRI machines, maglev trains, and fusion reactors; RRCAT's beam diagnostics expertise is transferable to particle beam cancer therapy (proton beam therapy) – a high-value medical application

IndiaAI MISSION — SOVEREIGN AI INFRASTRUCTURE + AIKosh UNIVERSITY PROGRAMME

Ministry: Ministry of Electronics & IT / IndiaAI

PIB Date: 4th–6th August 2026

Easy Explanation

Artificial intelligence is rapidly becoming as strategic as nuclear technology or semiconductor manufacturing – a capability gap between nations will translate into economic and security disadvantages that compound over decades. India launched the IndiaAI Mission in March 2024 with a Rs 10,372 crore outlay – the most ambitious national AI programme in India's history. This week's Parliamentary Questions and PIB updates provided a comprehensive status report covering three major components. First, Compute Infrastructure: IndiaAI is building a sovereign AI compute infrastructure – 10,000+ GPU (Graphics Processing Unit) nodes procured by the government and made available to Indian researchers, startups, and companies at subsidised rates. India's AI researchers currently rely on Google Cloud, AWS, and Azure for computing – expensive, subject to foreign company policies, and a data sovereignty risk. The government-owned GPU cluster removes these dependencies. Second, AI Kosh (AI Knowledge Shared Open Facility): A university engagement programme launched this week at Chitkara University – IndiaAI is deploying AI datasets and compute access at 200+ universities, allowing students and researchers to train AI models on Indian datasets without needing expensive cloud accounts. Third, Deepfake Regulation: MeitY this week strengthened the regulatory framework to address AI-generated deepfakes



| Click to Connect Now.



– mandating that platforms label AI-generated content, providing users with a mechanism to report deepfakes, and imposing liability on platforms that fail to act within 36 hours of a deepfake report.

Key Terms:

Term	Definition
IndiaAI Mission	Rs 10,372 crore; March 2024 launch; seven pillars: compute infrastructure, frontier AI research, datasets platform, AI in governance, skilling, startups, safe AI; India's national AI programme
Sovereign AI Compute	Government-owned GPU cluster (10,000+ GPUs); makes AI compute available to Indian researchers/startups at subsidised rates; reduces dependence on foreign cloud providers (AWS, Google, Azure) for AI infrastructure
GPU (Graphics Processing Unit)	Microprocessor originally designed for gaming graphics; ideal for AI/ML training due to parallel processing capability; NVIDIA A100 and H100 are leading AI GPUs; India's critical AI infrastructure bottleneck
AI Kosh	AI Knowledge Shared Open Facility; IndiaAI's dataset + compute access programme for universities; 200+ universities to get access; students train AI models on Indian language datasets, Indian genomic data, Indian legal datasets
Deepfake Regulation	MeitY's AI-generated content framework; platforms must label AI-generated content; 36-hour removal obligation for reported deepfakes; liability on platforms failing to act; extends IT Rules 2021 to AI-generated content
National AI Portal (India.ai)	Government platform for AI resources, tutorials, AI tools access, India AI datasets; central hub for India's AI ecosystem; connects students, researchers, startups, and government AI initiatives
AI in Governance	IndiaAI Mission pillar using AI for government service delivery; PM Gati Shakti AI, iGOT Karmayogi AI learning, AI-powered crop advisory (Kisan e-Mitra), AI for tax compliance – government as the first large-scale AI deployer

Important Points for UPSC:



| Click to Connect Now.



- 10,000 GPU context: OpenAI trained GPT-4 on ~25,000 A100 GPUs; India's 10,000 GPUs is meaningful but not frontier AI training scale; sufficient for fine-tuning global foundation models on Indian data and training mid-size models – the right ambition for India's current stage
- Data sovereignty: When Indian researchers use AWS or Google Cloud to train AI on Indian health data, language data, or government data, that data passes through foreign servers subject to foreign laws; IndiaAI's sovereign compute ensures Indian data stays in India – critical for sensitive domains (health, defence, judicial)
- AIKosh university programme: India has 1,000+ universities and 40,000 colleges; AIKosh's 200-university rollout is a start; the programme provides pre-processed Indian language datasets (BHASHINI's corpus), Indian legal text (for LegRAA-type applications), and Indian agricultural data – domain-specific AI training on Indian context
- Deepfake threat: India's 2024 election saw multiple deepfake videos of political leaders; deepfake voice calls have been used for financial fraud (Rs 500+ crore lost in 'boss scam' type deepfake fraud in 2024-25); MeitY's framework addresses both political and financial deepfake harms
- NVIDIA partnership: IndiaAI has a partnership with NVIDIA for the sovereign GPU cluster; NVIDIA's DGX SuperPOD systems; India gets priority supply of NVIDIA GPUs – significant given global GPU shortage and export controls (USA restricted H100 exports to India initially, then relaxed)
- Semiconductor + IndiaAI synergy: Semicon 2.0 (Week 7) + IndiaAI Mission = India's dual approach to AI: build the chips (Semicon 2.0) and build the AI infrastructure (IndiaAI); complete the stack from silicon to application
- BharatGen: India's own large language model being developed under IndiaAI Mission; multilingual (22 Indian languages); trained on IndiaAI datasets; will be made available as open-source foundation model for Indian developers – India's answer to ChatGPT, built on Indian data for Indian contexts

INDIAN PHARMACOPOEIA COMMISSION RECOGNISED BY WHO SEARO AS REGIONAL CENTRE OF EXCELLENCE

Ministry: Ministry of Health and Family Welfare / IPC

PIB Date: 5th August 2026

Easy Explanation

India is called the 'pharmacy of the world' – it supplies 20% of global generic medicines by volume, 60% of global vaccine doses, and accounts for 50% of US FDA-approved manufacturing plants outside the USA. But being the world's biggest generic drug maker is not the same as being trusted for drug safety standards. The WHO's recognition of the Indian Pharmacopoeia Commission (IPC) as a Regional Centre of Excellence in Pharmacovigilance and Technical Centre in Quality of Medicines under WHO SEARO (South-East Asia Regional Office) is a formal acknowledgment that India's drug quality standards and safety monitoring systems have



| Click to Connect Now.



reached a level where they can guide the entire South and Southeast Asia region. The IPC, based in Ghaziabad, publishes the Indian Pharmacopoeia (IP) – the official document that specifies the standards (purity, potency, composition) for all drugs manufactured or sold in India. If the IP says paracetamol must be 98.5-101.5% pure, every Indian manufacturer must meet that standard. Pharmacovigilance is the science of monitoring drugs after they are approved – tracking adverse reactions, unexpected side effects, and quality failures in the real world. IPC's National Pharmacovigilance Programme (PvPI – Pharmacovigilance Programme of India) collects adverse drug reaction (ADR) reports from 1,800+ healthcare facilities across India and feeds them into WHO's global VigiBase (the world's largest drug safety database). WHO SEARO's recognition means IPC will now train drug regulators and pharmacovigilance personnel from 11 SEARO member countries.

Key Terms:

Term	Definition
IPC (Indian Pharmacopoeia Commission)	Ghaziabad, UP; autonomous body under MoHFW; publishes Indian Pharmacopoeia (IP); sets quality standards for drugs in India; manages PvPI (pharmacovigilance programme)
Indian Pharmacopoeia (IP)	Official compendium of drug quality standards for India; specifies purity, potency, composition of every approved drug; updated every 5 years; IP 2022 is current edition; reference standard for all drug manufacturing
WHO SEARO	WHO South-East Asia Regional Office; covers 11 member countries including India, Bangladesh, Sri Lanka, Myanmar, Nepal, Thailand, Indonesia; IPC is now the regional pharmacovigilance training centre for all SEARO members
Pharmacovigilance	Science of detecting, assessing, understanding, and preventing adverse effects of medicines after approval; PvPI is India's national programme; feeds into WHO's VigiBase (global ADR database)
PvPI (Pharmacovigilance Programme of India)	India's ADR reporting programme; 1,800+ healthcare facilities report adverse drug reactions; data submitted to WHO VigiBase; IPC manages PvPI; SEARO recognition elevates PvPI to a regional model
VigiBase	WHO's global adverse drug reaction database; 25 million+ individual case safety reports from 150 countries; India is one of the top contributors; IPC's SEARO recognition strengthens India's voice in global drug safety governance
Generic medicine quality	India's generic medicine quality has faced scrutiny (recalls in USA, Canada over quality issues); IPC's WHO recognition is a reputational





upgrade — signals that India's standards-setting body meets international benchmarks

Important Points for UPSC:

- India's pharmacy status: Supplies 60% of global vaccines, 25% of UK medicines, 40% of US generic drugs; SEARO recognition adds regulatory credibility to this manufacturing dominance — the world's largest generic producer is now also a regional quality standards leader
- 11 SEARO countries: India, Bangladesh, Sri Lanka, Myanmar, Nepal, Thailand, Indonesia, Bhutan, North Korea (observer), Maldives, Timor-Leste; IPC will train their pharmacovigilance officers — India exports regulatory expertise, not just medicines
- PvPI ADR database: India's PvPI now has 3+ million adverse drug reaction reports; one of the world's most comprehensive national pharmacovigilance datasets; IPC's AI-powered ADR signal detection (using machine learning to identify new safety patterns from ADR data) is being shared with SEARO members
- Recent drug quality incidents: India's cough syrup deaths (2022-23 — Marion Biotech's syrup caused deaths in Gambia, Uzbekistan); identified as diethylene glycol contamination; these incidents made international headlines; IPC's WHO recognition partly signals India's response — strengthened quality monitoring post-scandal
- Drugs and Cosmetics Act 1940 (amended): India's primary drug regulation law; IPC's IP sets standards under this Act; Central Drugs Standard Control Organisation (CDSCO) enforces; IPC + CDSCO together form India's drug quality architecture
- Jan Aushadhi connection: PM Jan Aushadhi scheme sells generic medicines at 50-90% discount through 10,000+ outlets; these generics must meet IP standards; IPC's SEARO recognition makes the case that Jan Aushadhi medicines — though cheap — are world-standard quality

INDIA-RWANDA FIRST JOINT TRADE COMMITTEE — AFRICA TRADE DEEPENING

Ministry: Ministry of Commerce & Industry

PIB Date: 1st August 2026

Easy Explanation

Rwanda is a small, landlocked country in East Africa — 26,000 sq km, 14 million people — that has achieved one of the world's most remarkable post-conflict economic transformations. After the 1994 genocide that killed 800,000 people in 100 days, Rwanda rebuilt itself through a decade of political stability, anti-corruption governance, and strategic economic planning under President Paul Kagame. Today Rwanda has a per capita income of \$1,000 (from near-zero in 1994), is the 2nd easiest country to do business in Africa (World Bank Ease of Doing Business 2020), has universal health insurance coverage (Mutuelle de Santé), and is positioning itself as East Africa's technology and services hub. For India, Rwanda matters strategically for three reasons. First, it is a gateway to the



| Click to Connect Now.



East African Community (EAC) – a common market of 300 million people (Tanzania, Kenya, Uganda, Burundi, South Sudan, DRC) where Rwanda has full access under the EAC free trade area. Second, Rwanda has Africa's first drone delivery network (Zipline – delivering blood and medicines by drone to rural clinics) and is rapidly becoming a tech-forward economy that values Indian IT and fintech partnerships. Third, the African Continental Free Trade Area (AfCFTA) – the world's largest FTA by number of countries (54 African nations) – of which Rwanda is a member, gives Indian companies that establish in Rwanda access to the entire African market. The First Joint Trade Committee (JTC) meeting on August 1 is the formal foundation for structured trade relationship – a JTC is the first step before any comprehensive trade agreement.

Key Terms:

Term	Definition
Rwanda	East African nation; 14 million people; remarkable post-1994 genocide recovery; EAC member; 2nd easiest African country to do business in; tech-forward economy; Kigali is a hub for African Union + development organisations
EAC (East African Community)	Common market: Tanzania, Kenya, Uganda, Rwanda, Burundi, South Sudan, DRC; 300 million people; free movement of goods, services, capital, people within EAC; Rwanda's EAC membership = gateway for India
AfCFTA (African Continental Free Trade Area)	Largest FTA by number of countries (54 African nations); launched 2021; aims to eliminate 90% of tariffs among member states; \$3.4 trillion combined GDP; establishes a single African market – India establishing trade agreements with individual African nations locks in access
Joint Trade Committee (JTC)	Bilateral mechanism for structured trade dialogue; reviews trade barriers, negotiates tariff concessions, facilitates investment; first step before a comprehensive trade agreement; India has JTCs with 50+ countries
Zipline Rwanda	Rwanda's drone delivery network (US company Zipline, operating in Rwanda); delivers blood, vaccines, medicines to rural clinics; world's first national medical drone network; India's Hombre (DGCA's drone delivery framework) has learned from Rwanda's model
India-Africa Trade	India-Africa bilateral trade: \$100 billion (2023-24); India is Africa's 3rd largest trading partner; Indian exports: pharma, textiles, machinery; Africa exports: crude oil, gold, pulses, cashew; JTC with Rwanda deepens this bilateral component
Kigali Declaration 2022	India-Africa Forum Summit 2022 committed to \$150 billion India-Africa trade by 2030; individual country JTCs like India-Rwanda are implementation mechanisms of this summit commitment

Important Points for UPSC:



| Click to Connect Now.



- India-Africa Forum Summit (IAFS): IAFS-III (2015, New Delhi) committed \$600 million in development assistance and 50,000 scholarships; IAFS-IV planned for 2026; India-Rwanda JTC is part of the bilateral diplomacy ahead of IAFS-IV
- Rwanda's Indian community: 5,000+ Indians in Rwanda (business, NGOs, UN agencies based in Kigali); Indian pharma (Cipla, Dr Reddy's) supplies Rwanda's national health insurance programme with generic medicines – existing commercial relationship that JTC will formalise
- Technology partnership: India's UPI model is being studied by Rwanda's central bank for mobile payment system upgrades; India's ONDC model is relevant for Rwanda's digital commerce ambitions; JTC creates a formal channel for India's tech diplomacy with Rwanda
- Genocide commemoration: India maintained diplomatic relations with Rwanda throughout the 1994 genocide and aftermath – one of few countries that did not withdraw its ambassador; this historical goodwill gives India a trust advantage over China, USA, and EU in Rwanda
- Mineral dimension: DRC (Rwanda's neighbour and EAC member) has world's largest cobalt deposits; Rwanda is a transit point for DRC minerals; India's critical minerals strategy (Weeks 8-9 context) makes Rwanda-EAC relationships strategically important beyond just trade
- India's Africa strategy: India has diplomatic representation in all 54 African states; \$12 billion in lines of credit to Africa; but trade and investment are below potential; individual JTCs (Rwanda, this week) are part of systematically deepening economic engagement before the China-Africa relationship becomes irreversible

IEPFA INTEGRATED PORTAL 2.0 – INVESTOR EDUCATION AND PROTECTION FUND UPGRADE

Ministry: Ministry of Corporate Affairs / IEPFA

PIB Date: 6th August 2026

Easy Explanation

Every year, thousands of Indians forget about shares they bought decades ago, fixed deposits that matured but were never claimed, or dividends that accumulated while the investor lost track. When these amounts remain unclaimed for 7 years, companies are legally required under the Companies Act 2013 to transfer them to the Investor Education and Protection Fund (IEPF) – a fund managed by IEPFA (IEPF Authority) under the Ministry of Corporate Affairs. IEPF currently holds Rs 6,000+ crore in unclaimed dividends, Rs 2,000+ crore in unclaimed shares (matured value), and thousands of crore in unclaimed fixed deposits. The problem: the process of reclaiming money from IEPF has been notoriously difficult. An investor (or their legal heir) had to: fill a physical form (IEPF-5), get it verified by the company, submit it to the Registrar of Companies, wait for IEPF Authority processing, and collect the amount – a process that took 6-18 months and was beyond the capability of most small investors. IEPFA this week organised stakeholder engagement on the Integrated IEPFA Portal 2.0 – a fully digital, end-to-end platform where investors can: search for unclaimed amounts using their PAN or Aadhaar, file refund claims online,



| Click to Connect Now.



track claim status in real time, and receive refunds directly into their bank accounts. The portal integrates with NSDL and CDSL (depositories) for share verification, and with the Income Tax Department's PAN database for identity verification.

Key Terms:

Term	Definition
IEPF (Investor Education and Protection Fund)	Statutory fund under Companies Act 2013; receives unclaimed dividends (7+ years), shares, deposits from companies; Rs 8,000+ crore corpus; managed by IEPFA under MCA
IEPFA (IEPF Authority)	Statutory body under MCA; administers IEPF; processes refund claims; conducts investor awareness programmes; Integrated Portal 2.0 is its digital transformation initiative
Unclaimed dividends	Dividends declared by companies but not collected by shareholders; if unclaimed for 7 consecutive years, transferred to IEPF; shareholder can still claim from IEPF at any time
IEPF-5 form	Form for claiming refund from IEPF; previously physical, now digital on IEPFA Portal 2.0; supported by Aadhaar-based e-verification and direct bank credit for refunds
NSDL / CDSL	National Securities Depository Ltd / Central Depository Services Ltd; India's two depositories where shares are held in electronic (demat) form; IEPFA Portal 2.0 integrates with both for share verification
Companies Act 2013 Section 124-125	Mandates companies to transfer unpaid/unclaimed dividends to IEPF after 7 years; company must also transfer the corresponding shares; IEPFA Portal 2.0 streamlines compliance for both companies and claimants
Investor awareness	IEPFA's mandate includes educating investors about their rights; 'Niveshak Didi' programme trains women investors; investor education is especially important given India's growing retail investor base (8 crore+ demat accounts)

Important Points for UPSC:

- Scale of unclaimed wealth: Rs 6,000+ crore unclaimed dividends + Rs 2,000+ crore shares in IEPF; most belong to small investors who have lost track of old investments; Portal 2.0 makes reclaiming accessible to even digitally inexperienced investors
- 7-year rule: Companies must transfer unclaimed dividends to IEPF after 7 years under Section 124 of Companies Act 2013; the corresponding shares are also transferred under Section 124(6); once in IEPF, investor can claim at any time – there is no time limit for claiming from IEPF



| Click to Connect Now.



- India's retail investor boom: Demat accounts crossed 17 crore in 2025-26 (up from 4 crore in 2020); new retail investors are at risk of repeating the unclaimed dividend problem; IEPFA's awareness programmes target new investors before they make the same mistakes
- Digital India integration: Portal 2.0 uses DigiLocker for document submission, Aadhaar-based e-KYC for identity verification, and PFMS (Public Financial Management System) for refund payment – complete DPI stack for investor protection
- Corporate compliance: Companies must also use Portal 2.0 to report transfers to IEPF; automated corporate reporting reduces the scope for companies to delay or avoid IEPF transfers – a corporate governance improvement alongside the investor-facing portal upgrade
- GeM parallel: Just as GeM (Government e-Marketplace) transformed public procurement by digitising it end-to-end, IEPFA Portal 2.0 digitises investor protection claim processing end-to-end – both are DPI applications in traditionally paper-heavy domains

USBRL — ALL-WEATHER RAIL CONNECTIVITY TO KASHMIR, STRATEGIC AND ECONOMIC MILESTONE

Ministry: Ministry of Railways / Northern Railway

PIB Date: 7th August 2026

Easy Explanation

The Udhampur-Srinagar-Baramulla Rail Link (USBRL) project is one of the most challenging engineering feats in the history of Indian Railways – and arguably in world railway history. The project connects Jammu's rail network (which had reached Udhampur by 2005) to Kashmir Valley through the Himalayas, crossing terrain with altitudes up to 4,000 metres, geologically unstable mountains, and seismic Zone V conditions (highest earthquake risk). The 272 km USBRL project includes: 38 tunnels (totalling 119 km – nearly half the route is underground), 927 bridges, and the Chenab Railway Bridge – the world's highest railway bridge at 359 metres above the river bed (taller than the Eiffel Tower). The most critical section – the Banihal-Katra stretch connecting Katra (near Vaishno Devi) to Kashmir Valley – was completed in 2024-25 and is now fully operational. Parliamentary update this week from Railway Minister Ashwini Vaishnaw: USBRL provides all-weather rail connectivity to Kashmir for the first time in history – the Jammu-Srinagar National Highway 44 is frequently blocked by landslides, avalanches, and weather (closed 60-90 days per year on average); USBRL gives Kashmir a weather-independent supply chain. Strategic impact: Kashmir Valley can now receive food, medicines, military supplies, and commercial goods by rail regardless of weather. Farmers can send perishables (apples, saffron, vegetables) to markets in 24 hours by rail vs 3-5 days by road (when road is open).

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



USBRL	Udhampur-Srinagar-Baramulla Rail Link; 272 km; 38 tunnels (119 km underground); 927 bridges; connects Jammu rail network to Kashmir Valley; provides all-weather connectivity to Kashmir
Chenab Railway Bridge	World's highest railway bridge; 359 metres above Chenab River bed (taller than Eiffel Tower); part of USBRL; steel arch bridge; seismically designed for Zone V earthquake conditions
Banihal-Katra section	Critical missing link of USBRL; 111 km; includes Banihal-Qazigund tunnel (8.2 km, longest railway tunnel in India by length at time of construction); completed 2024-25; connects Katra to Kashmir Valley
NH-44 vulnerability	National Highway 44 (Jammu-Srinagar): closed 60-90 days/year due to landslides, avalanches, weather; the only surface road to Kashmir; USBRL creates a weather-independent alternative
Zone V seismicity	India's highest earthquake hazard zone; all of Kashmir Valley and surrounding Himalayas are Zone V; USBRL bridges and tunnels designed for Zone V seismic loads – among the most demanding structural engineering standards in India
Kashmir apple economy	Kashmir produces 70%+ of India's apples; NH-44 blockage causes Rs 500-1,000 crore annual losses to apple growers when road is blocked during harvest season (September-October); USBRL removes this supply chain vulnerability
Strategic supply chain	Kashmir Valley has 700,000+ military and paramilitary personnel; supply of ammunition, equipment, rations by rail (vs air, which is weather-dependent) significantly enhances operational sustainability

Important Points for UPSC:

- Engineering superlatives: 38 tunnels (119 km underground), 927 bridges (30 major bridges), Chenab Bridge (world's highest railway bridge), T-49 tunnel (12.75 km, longest rail tunnel in India) – USBRL is a catalogue of Indian engineering firsts
- Cost and timeline: Sanctioned 1997; estimated cost Rs 3,720 crore → final cost Rs 35,000+ crore (10x overrun) due to geological challenges, security issues, and scope additions; 27 years from sanction to completion – the longest gestation of any Indian Railways project
- Chenab Bridge records: 359 m height (Eiffel Tower is 330 m); arch span 467 m; built with 28,660 tonnes of steel; designed to withstand blast (security specification); survived a Category 9 earthquake simulation in design testing – extraordinary structural achievement
- Economic transformation: USBRL will reduce Kashmir apple transport cost by 40-50% (rail is cheaper than road per tonne-km); saffron, handicrafts, and other Kashmir produce will have faster, cheaper market access; tourism will grow as train travel to Kashmir becomes possible





- Military logistics: Indian Army's Northern Command (headquartered Udhampur) can now move heavy equipment, artillery, and supplies by rail to Kashmir; previously dependent on air and the vulnerable NH-44; USBRL directly improves India's military logistics in the most sensitive theatre
- J&K integration post-Article 370: USBRL's completion as a physical infrastructure milestone coincides with J&K's integration as a Union Territory; rail connectivity is the economic complement to the political integration – markets, trade, and mobility connecting Kashmir to mainland India

NAMO BHARAT — REGIONAL RAPID TRANSIT SYSTEM UPDATE

Ministry: Ministry of Housing & Urban Affairs / NCRTC

PIB Date: 4th August 2026

Easy Explanation

The NAMO Bharat Regional Rapid Transit System (RRTS) is India's first rail-based regional mobility system – distinct from metro rail (which serves within a city) and distinct from conventional rail (which serves intercity travel). RRTS serves the space between these two: connecting cities within a metropolitan region at speeds of 160-180 km/h, with station spacing of 5-15 km (vs metro's 1-2 km), and designed for commuters who travel 30-100 km between home and work. The first RRTS corridor – Delhi-Ghaziabad-Meerut (82 km) – has been progressively commissioned since 2023. Parliamentary questions this week confirmed: 82 km of the Delhi-Meerut RRTS is fully operational; Sahibabad-New Ashok Nagar section (connecting RRTS to Delhi Metro network) has commenced, creating India's first RRTS-Metro interchange; daily ridership has reached 1.2 lakh passengers; and the Meerut South to Modipuram extension (14 km) is under construction. The RRTS connects Meerut (1.5 million people, 70 km from Delhi) to Delhi in 55 minutes – versus 3-4 hours by road in peak traffic. Three more RRTS corridors are under construction: Delhi-Panipat, Delhi-Alwar, and Delhi-SNB (Sahibabad-New Ashok Nagar-Boraki) – together making NCR the world's largest RRTS network when complete.

Key Terms:

Term	Definition
RRTS (Regional Rapid Transit System)	High-speed regional rail system; 160-180 km/h; connects cities within metropolitan regions; station spacing 5-15 km; designed for 30-100 km daily commuters; distinct from metro and conventional rail
NCRTC	National Capital Region Transport Corporation; implements RRTS in NCR; JV of Central Government + NCR state governments (UP, Haryana, Rajasthan) + Delhi; under MoHUA
Delhi-Meerut RRTS (RAPIDX)	82 km; India's first RRTS corridor; connects Delhi to Meerut in 55 minutes; branded 'RAPIDX'; 25 stations; Sahibabad priority section operational since 2023; full 82 km operational August 2026



| Click to Connect Now.



RRTS-Metro interchange	Sahibabad-New Ashok Nagar section connects RRTS to Delhi Metro Blue Line; first intermodal RRTS-Metro junction in India; passengers can switch between RRTS and metro at single station
1.2 lakh daily ridership	Current NAMO Bharat ridership; growing monthly; target 8 lakh/day when full network is complete; ridership growth indicates acceptance of RRTS as a commuter product
Three more corridors	Delhi-Panipat (103 km), Delhi-Alwar (164 km, longest), Delhi-SNB (Boraki) – all under various construction stages; complete NCR RRTS network by 2031
European RRTS models	France's RER (Paris), Germany's S-Bahn, Netherlands' Intercity Direct – regional high-speed rail integrating with city metros; NAMO Bharat is India's equivalent of these proven European models

Important Points for UPSC:

- NCR's commuter crisis: NCR has 4 crore+ population; 2.5 crore daily commuters; average NCR commute time is 1.5-2 hours each way; RRTS reducing Meerut-Delhi from 3-4 hours to 55 minutes = 2+ hours saved per commuter per day – massive productivity and quality of life gain
- RRTS vs Metro vs Rail: Metro (1-2 km station spacing, 80 km/h, in-city); RRTS (5-15 km station spacing, 160-180 km/h, inter-city within NCR); Shatabdi/Rajdhani (30-50 km station spacing, 130-160 km/h, interstate) – RRTS fills the missing middle tier
- RAPIDX branding: NCRTC branded the service 'RAPIDX' for retail marketing; trains have business class (Nalpa seats, WiFi, charging points) and economy class; premium pricing (higher than metro, lower than flight) targets NCR's emerging middle-class commuter
- Freight dimension: RRTS infrastructure can carry express parcel cargo during off-peak hours; NCRTC exploring RRTS freight service for SME logistics in NCR – same infrastructure, dual use
- Funding model: RRTS funded by Central Government (20%), State Governments (20%), and multilateral loans – ADB and KfW (Germany) are lending to RRTS; KfW's involvement reflects Germany's interest in India's green transport infrastructure
- Air quality benefit: Every 1 lakh RRTS commuters replacing private car use reduces approximately 1,000 tonnes of CO₂ and 5 tonnes of PM_{2.5} annually in NCR; at 8 lakh target ridership, RRTS becomes a significant NCR air quality intervention

CHANDIPURA VIRUS OUTBREAK — NATIONAL JOINT OUTBREAK RESPONSE TEAM DEPLOYED

Ministry: Ministry of Health and Family Welfare / ICMR / NCDC



| Click to Connect Now.



PIB Date: 5th August 2026

Easy Explanation

The Chandipura Virus (CHPV) is one of India's lesser-known but highly lethal endemic pathogens – capable of killing children within 24-48 hours of symptom onset, with a case fatality rate (CFR) of 55-75% in confirmed cases. It belongs to the Rhabdoviridae family (same family as the rabies virus), is transmitted by sandflies (Phlebotomus species), and predominantly affects children under 15 in rural areas of Gujarat, Rajasthan, Andhra Pradesh, and Maharashtra. India has seen periodic CHPV outbreaks since 1966 (when it was first isolated in Chandipura village, Nagpur district, Maharashtra – hence the name). The 2003-04 outbreak in Andhra Pradesh and Gujarat killed 329 children. The 2025-26 outbreak – spreading across Gujarat, Rajasthan, and parts of Maharashtra – has caused sufficient alarm that the Union Health Ministry this week deployed a National Joint Outbreak Response Team (NJORT) consisting of epidemiologists from NCDC (National Centre for Disease Control), virologists from ICMR-NIV (National Institute of Virology, Pune), and entomologists from NVBDCP (National Vector Borne Disease Control Programme) for a multi-institutional investigation. There is currently no specific treatment for CHPV and no vaccine. Management is supportive (treating symptoms, managing brain swelling, ventilator support in severe cases). The primary prevention is sandfly control – insecticide spraying, sleeping under fine-mesh nets, and eliminating sandfly breeding habitats (rubble, cracks in walls, livestock pens).

Key Terms:

Term	Definition
Chandipura Virus (CHPV)	RNA virus; Rhabdoviridae family; transmitted by Phlebotomus sandfly; CFR 55-75% in children; predominantly affects under-15s; endemic in Gujarat, Rajasthan, AP, Maharashtra; first isolated 1966 in Nagpur
Rhabdoviridae	Virus family including CHPV and rabies virus; bullet-shaped RNA viruses; cause neurological disease; CHPV causes acute encephalitis (brain inflammation) in children
Sandfly (Phlebotomus)	Tiny biting insect; vector for CHPV, Leishmaniasis (kala-azar), and sandfly fever; breeds in rubble, animal burrows, cracks in walls; most active at dusk and dawn; does not fly long distances
NJORT	National Joint Outbreak Response Team; multi-institutional team deployed for complex outbreaks; includes NCDC epidemiologists, ICMR virologists, NVBDCP entomologists; coordinates investigation and response
NCDC (National Centre for Disease Control)	Delhi; under DGHS, MoHFW; India's apex centre for disease surveillance and outbreak investigation; maintains the Integrated Disease Surveillance Programme (IDSP) network



| Click to Connect Now.



ICMR-NIV Pune	National Institute of Virology, Pune; India's reference laboratory for viral diseases; first identified CHPV in 1966; maintains CHPV reference strains; conducts confirmatory diagnosis for outbreak samples
Case Fatality Rate (CFR)	Proportion of confirmed cases that die; CHPV CFR of 55-75% is extremely high (compare: COVID-19 CFR ~0.5-1%, Ebola ~50%, Rabies ~100% if untreated); CHPV is one of India's deadliest endemic viruses

Important Points for UPSC:

- CHPV history in India: 1966 – first isolated in Chandipura, Nagpur; 2003-04 – major outbreak, AP + Gujarat, 329 children killed; 2010 – Gujarat cluster; 2025-26 – current multi-state outbreak; periodic outbreaks every 5-10 years, always in summer-monsoon transition when sandfly populations peak
- Why children: CHPV preferentially causes severe disease in children under 15; adults either have partial immunity from prior exposure or the virus causes milder disease; the 55-75% CFR is specifically for paediatric encephalitis cases – most alarming for rural areas with poor hospital access
- Sandfly vs mosquito: Sandflies are 3 mm long (1/4 the size of a mosquito); pass through standard mosquito nets; require fine-mesh nets (<0.6 mm aperture); this makes prevention harder than for mosquito-borne diseases; wall spraying with DDT or synthetic pyrethroids is more effective
- One Health dimension: CHPV has been found in livestock (cattle, donkeys); sandflies that feed on livestock can then bite humans; village environments where humans and livestock share space are high-risk; One Health surveillance (animal + human + vector) is recommended by ICMR for CHPV monitoring
- No vaccine – development challenge: CHPV vaccine development has been hampered by: periodic outbreak pattern (no sustained commercial incentive), small market (India-specific, not global), and the technical challenge of Rhabdovirus vaccine development; CHPV is a candidate for India's Coalition for Epidemic Preparedness Innovations (CEPI) engagement
- IDSP role: Integrated Disease Surveillance Programme (IDSP) has CHPV in its list of immediately reportable diseases since 2004 outbreak; states with CHPV history must report any cluster of childhood encephalitis within 24 hours – NJORT deployment is triggered when IDSP alerts reach the national threshold

PINGALI VENKAYYA — 150TH BIRTH ANNIVERSARY OF INDIA'S FLAG DESIGNER

Ministry: Prime Minister's Office / Ministry of Culture

PIB Date: 2nd August 2026

Easy Explanation

On August 2, PM Modi paid tributes to Pingali Venkayya on his 150th birth anniversary. Most Indians know the Indian National Flag – but very few know who designed it. Pingali Venkayya (2 August 1876 – 4 July 1963) was a freedom fighter, scholar, and polyglot from Machilipatnam (the same coastal AP city after which INS



| Click to Connect Now.



Machilipatnam was named – a remarkable coincidence of this week's PIB). He was born in Krishna district (now in Andhra Pradesh), fought in the Second Boer War in South Africa (where he met Mahatma Gandhi), returned to India deeply influenced by Gandhi's philosophy, and became obsessed with the idea that India needed its own flag before it could be truly free. Between 1916 and 1921, Venkayya designed 30 different flag prototypes, studying the national flags of 30 countries. He presented his design to Gandhi at the 1921 Congress session in Vijayawada – a horizontal tricolour of red (for Hindus), green (for Muslims), and white (for other communities) with a spinning wheel (charkha) at the centre. Gandhi modified it – the colours' communal significance was dropped in favour of universal values, and the flag underwent further evolution. By 1947, the charkha was replaced by the Ashoka Chakra (from the Sarnath Lion Capital – connecting beautifully with this week's Sarnath UNESCO inscription) and the final tricolour was adopted. Venkayya died in 1963, unrecognised and in poverty. He was awarded the Padma Bhushan posthumously – but only in 2009, 46 years after his death.

Key Terms:

Term	Definition
Pingali Venkayya	2 August 1876 – 4 July 1963; freedom fighter, scholar; from Machilipatnam, AP; designed the prototype of India's National Flag; presented to Gandhi at 1921 Vijayawada Congress session
1921 Vijayawada Congress session	Venkayya presented his flag design to Gandhi here; initial design had red, green, white horizontal bands + charkha; Gandhi approved the concept; further refinements followed over 1921-1947
Ashoka Chakra	24-spoked wheel from Sarnath's Lion Capital (Ashoka's pillar); replaced the charkha in the 1947 Constituent Assembly-adopted flag; deep blue colour; symbolises eternal wheel of dharma; connects India's ancient past to its modern identity
Indian National Flag specifications	Adopted 22 July 1947; saffron (courage, sacrifice), white (peace, truth), green (faith, chivalry, prosperity); Ashoka Chakra (navy blue, 24 spokes) at centre; ratio 2:3; only khadi (originally) – Flag Code amended 2022 to allow machine-made fabric
Padma Bhushan (posthumous)	Venkayya received Padma Bhushan in 2009 – 46 years after death; recognition came very late; his house in Machilipatnam was in dilapidated condition; the 150th anniversary is partly to correct this historical neglect
Boer War + Gandhi connection	Venkayya served in British Indian Army during Second Boer War (1899-1902) in South Africa; Gandhi was also in South Africa at the same time (running Natal Indian Congress); they met there; Gandhi's influence shaped Venkayya's political evolution



**Prevention of Insults to National Honour Act**

Criminalises disrespect to the National Flag (among other national symbols); 2026 Amendment (Week 9) extended this to digital acts of disrespect; Venkayya's anniversary is a reminder of what the flag represents and why its protection matters

Important Points for UPSC:

- 150th birth anniversary: Centenary recognition is UPSC-significant – examiners look for such anniversaries; 2026 = 150 years since Venkayya's birth on August 2, 1876; PM's tribute signals this is a year of official recognition
- Flag evolution: 1906 – first Indian flag (Calcutta, Parsee Bagan Square); 1907 – Bhikaji Cama's flag at Stuttgart, Germany; 1917 – Bal Gangadhar Tilak + Annie Besant's Home Rule flag; 1921 – Venkayya's design (Gandhi Congress session); 1931 – INC officially adopted saffron-white-green tricolour; 1947 – Constituent Assembly replaced charkha with Ashoka Chakra
- Ashoka Chakra origin: The Ashoka Chakra comes from the abacus (base) of the Sarnath Lion Capital – the same Lion Capital whose Lions form India's National Emblem and which was inscribed as a UNESCO World Heritage Site this very week (Art 1, Week 9); this connection is UPSC gold
- Flag Code of India 2002: Governs proper display, use, and disposal of the National Flag; originally only hand-spun khadi was permitted; 2022 amendment for Har Ghar Tiranga allowed machine-made fabric; 24-hour display allowed (previously only sunrise to sunset); Flag Code is administered by Ministry of Home Affairs
- Machilipatnam connection: INS Machilipatnam (Week 9 ASW SWC) is named after the same coastal AP city where Pingali Venkayya was born; this week's PIB carries both – a remarkable coincidence or deliberate cultural choice worth noting
- Venkayya's legacy: A postage stamp was issued in his honour (2009); his portrait hangs in the Parliament House; Machilipatnam airport is named Venkayya Naidu Airport; the 150th anniversary recognition continues India's delayed but deepening acknowledgement of this neglected freedom fighter

PIB BACKGROUNDER — ROADS REIMAGINED: THE RISE OF INDIA'S EV ECOSYSTEM

Ministry: Ministry of Heavy Industries / NITI Aayog

PIB Date: 5th August 2026

Easy Explanation

The PIB Backgrounder 'Roads Reimagined' provides a comprehensive account of how India's electric vehicle ecosystem has been built over the past decade – from a near-zero base in 2014 to a 16 lakh annual EV sales market in 2024-25. India's EV journey has five distinct policy layers, each addressing a different market failure. Layer 1 – Demand creation (FAME): The Faster Adoption and Manufacturing of Hybrid and Electric Vehicles



| Click to Connect Now.



programme (FAME-I 2015, FAME-II 2019-2024) provided direct purchase subsidies of Rs 10,000-1.5 lakh per vehicle (higher for heavier vehicles that replaced more polluting ones). FAME-II disbursed Rs 7,000+ crore across 12 lakh+ EVs. Layer 2 – Supply creation (PLI for Advanced Chemistry Cells + PLI for Automobiles): PLI for ACC (Advanced Chemistry Cell batteries, Rs 18,100 crore) + PLI for automobile and auto components (Rs 25,938 crore) incentivised domestic EV and battery manufacturing – so that India made, not just assembled, EVs. Layer 3 – Infrastructure (PM E-DRIVE): Rs 2,000 crore for public charging stations (covered in Art 7 this week) + Rs 3,679 crore for e-buses across state transport corporations. Layer 4 – Standards and regulation (CAFE-III, AIS-038E safety standards): Pushed manufacturers to electrify fleets (CAFE) and ensured EVs meet safety standards (AIS-038E battery safety, mandatory since 2022). Layer 5 – Ecosystem integration (Battery Swapping Policy 2022, EV financing through SIDBI and NBFCs, Green Number Plates, EV Day on last Sunday of each month). The Backgrounder projects: India will be the world's 3rd largest EV market by 2030, after China and USA.

Key Terms:

Term	Definition
FAME-II	Faster Adoption and Manufacturing of Hybrid and Electric Vehicles Phase II; Rs 10,000 crore; 2019-2024; purchase subsidies for 2-wheelers (Rs 10,000-15,000), 3-wheelers, 4-wheelers, buses; 12 lakh+ vehicles subsidised
PLI for ACC	Production-Linked Incentive for Advanced Chemistry Cell batteries; Rs 18,100 crore; incentivises domestic battery cell manufacturing; 10 GWh new global tender issued (Week 9); reduces dependence on Chinese battery imports
PLI for Automobiles	Rs 25,938 crore PLI for automobiles and auto components; includes EVs and EV components; Tata Motors, M&M, Hyundai, Kia, OLA Electric are among beneficiaries
AIS-038E	Automotive Industry Standard 038 Revision E; India's mandatory EV battery safety standard; covers thermal management, crash protection, water resistance, short circuit protection; mandatory since 2022 after several EV fire incidents
Green Number Plates	EVs in India have green number plates (vs white for private petrol/diesel, yellow for commercial); makes EVs instantly identifiable; eligible for special parking, lower toll, and free entry to low emission zones
Battery Swapping Policy 2022	NITI Aayog policy for standardised swappable batteries; 2-wheelers and 3-wheelers can swap depleted battery for charged one at swapping stations; 2-minute swap vs 30-minute charge; particularly relevant for e-rickshaws and delivery vehicles



**16 lakh EV sales (2024-25)**

India's total EV sales in FY2024-25; 2-wheelers (11 lakh), 3-wheelers (4 lakh), 4-wheelers (1 lakh); target 30% EV penetration by 2030 = approximately 1.5 crore EVs/year

Important Points for UPSC:

- India's EV market structure: 2-wheelers dominate (70%+ of EV sales) because cost difference from petrol is smallest; 3-wheelers (e-rickshaws) are second (25%); 4-wheelers are growing but still <10% of total EV sales; buses are small in number but large in impact (each e-bus replaces 1 diesel bus serving 300+ daily commuters)
- OLA Electric: India's most valuable EV startup; IPO at Rs 76,000 crore valuation (2024); Ola S1 scooter is India's top-selling EV; Ola's Futurefactory in Tamil Nadu (world's largest 2-wheeler factory) produces 10 lakh+ EVs/year – PLI recipient
- Tata Motors EV leadership: Tata Nexon EV (compact SUV), Tata Punch EV, Tata Tigor EV – dominate 4-wheeler EV segment with 70%+ market share; Tata's EV success is partly because Tata.gov relationship made fleet procurement (government vehicles, Ola/Uber taxi fleets) easier
- CAFE-III connection (Week 7): The Backgrounder explicitly links CAFE-III norms (91.7 g CO₂/km by 2027) to the EV push; manufacturers must electrify 25-30% of new car sales by 2027 to meet CAFE-III – demand creation through regulatory push rather than subsidy pull
- India as 3rd largest EV market by 2030: China (10 million EVs/year), USA (2 million), India targeting 1.5 crore/year (15 million) – India's projection assumes continued policy support and falling battery prices; the Backgrounder projects India surpassing both USA and EU in EV volumes by 2028-29
- EV financing challenge: EVs cost 20-40% more upfront than equivalent petrol vehicles (though lifetime cost is lower); SIDBI is providing concessional loans to EV startups; RBI has mandated banks to include EV loans under priority sector lending – making EV loans easier and cheaper for buyers

PIB BACKGROUNDER — NAXAL-FREE INDIA: PROGRESS AND PATH FORWARD

Ministry: Ministry of Home Affairs

PIB Date: 2nd August 2026

Easy Explanation

Left Wing Extremism (LWE) – commonly called Naxalism after the 1967 Naxalbari uprising in West Bengal – was once described by PM Manmohan Singh as 'the single biggest internal security challenge' to India. At its peak (2009-2010), Naxal violence affected 223 districts across 20 states; 2,258 people were killed in 2010 alone (including security forces, civilians, and Naxals). A decade and a half later, the picture has transformed dramatically. The PIB Backgrounder 'Naxal-Free India' released this week documents this transformation with specific data: LWE-affected districts have reduced from 180 (2014) to 38 (2026); the 'Most Affected Districts' (red



| Click to Connect Now.



zone) have shrunk from 35 to 6; LWE-related violence incidents have fallen 73% since 2014; casualties have fallen 70%. The security approach used: the SAMADHAN doctrine (Smart Leadership, Aggressive Strategy, Motivation and Training, Actionable Intelligence, Dashboard-based KPIs, Harnessing Technology, Action plan for each theatre, No access to financing). Alongside security, the development component has been crucial: PMGSY roads reaching LWE villages (3,500+ km of roads built specifically in LWE areas), mobile connectivity (4G towers in LWE areas under a dedicated scheme), bank branches, schools, hospitals, and the 'Aspirational Districts' programme targeting the same geography. The Backgrounder notes a milestone: for the first time since 1967, no Naxal violence was recorded in West Bengal (where it started) in 2025.

Key Terms:

Term	Definition
LWE (Left Wing Extremism)	Maoist/Naxal insurgency; rooted in Naxalbari 1967 uprising; ideology: armed revolution to overthrow the state; affected 223 districts at peak; now reduced to 38 districts; primarily in Chhattisgarh, Jharkhand, Odisha, Telangana
SAMADHAN Doctrine	Smart Leadership, Aggressive Strategy, Motivation & Training, Actionable Intelligence, Dashboard KPIs, Harnessing Technology, Action plan per theatre, No access to financing; MHA's comprehensive counter-LWE strategy
Most Affected Districts (MAD)	Districts with highest LWE violence; were 35 in 2014, now 6 (primarily in Chhattisgarh, Jharkhand); special security and development focus; para-military deployment (CRPF Bastariya Battalion, Greyhounds in Telangana)
Aspirational Districts Programme	NITI Aayog programme for 112 backward districts; most LWE districts are aspirational districts; convergence of development schemes; district-level monitoring against 49 indicators; LWE districts show fastest improvement among aspirational districts
Naxalbari 1967	Naxalbari village, Darjeeling district, West Bengal; peasant uprising led by Charu Majumdar, Kanu Sanyal, Jangal Santhal; inspired by Maoist ideology; gave its name to Naxalism; irony: West Bengal now records zero LWE violence in 2025
CRPF Bastariya Battalion	Dedicated CRPF battalion recruited from tribal communities of Bastar (Chhattisgarh); soldiers know the terrain, language, and culture; highly effective in counter-LWE operations; model of using local knowledge for security
73% violence reduction since 2014	LWE incidents: 1,553 (2010, peak) → 1,091 (2014) → 287 (2025); casualties: 1,005 (2010) → 454 (2014) → 138 (2025); consistent reduction reflecting both security success and development impact

Important Points for UPSC:



| Click to Connect Now.



- Naxalism roots: Land alienation, bonded labour, forest rights denial, caste atrocities, and state neglect of tribal areas created conditions for Naxal recruitment; security alone cannot solve it – development addressing these grievances is equally important; SAMADHAN doctrine explicitly combines both
- Remaining 6 MADs: Bijapur, Sukma, Narayanpur, Dantewada, Kanker (all in Chhattisgarh's Bastar) + one in Jharkhand; Bastar's forest geography makes it India's last Naxal stronghold; CRPF Bastariya + drone surveillance + road construction are the current focus
- Forest Rights Act 2006: Granting forest rights to tribals under FRA was a key development response to Naxalism; 43 lakh individual forest rights titles issued nationally; in LWE areas, FRA implementation reduces Naxal recruitment by giving tribals a legal stake in the forest they depend on
- Mobile connectivity: 4G towers in LWE areas under a dedicated scheme (2018 onwards); connectivity brings banking (Jan Dhan), e-commerce (ONDC), education (PM eVIDYA), and governance (DBT) to previously isolated tribal communities – reduces Naxal propaganda's effectiveness
- Surrendered Naxals: MHA's surrender-cum-rehabilitation policy offers cash, vocational training, and resettlement to surrendering Naxals; 8,000+ Naxals surrendered between 2014-2026; reducing cadre strength more than security operations – rehabilitation is a force multiplier
- West Bengal milestone: West Bengal (birthplace of Naxalism, Naxalbari 1967) recorded zero LWE violence in 2025 – a deeply symbolic milestone; state's complete clearance from LWE is the template for eventual clearance of Chhattisgarh and Jharkhand
- FY2026-27 target: MHA has set a target of 'significant reduction' in the remaining 6 MADs by March 2027; government officials have spoken of 'LWE-free India by 2026' – the Backgrounder does not explicitly claim this but documents the trajectory toward it

PIB BACKGROUNDER — GOBARDHAN: FUELLING CLEAN ENERGY AND RURAL GROWTH

Ministry: Ministry of Petroleum & Natural Gas / Ministry of New and Renewable Energy

PIB Date: 7th August 2026

Easy Explanation

The PIB Backgrounder on GOBARDHAN, released alongside the Cabinet approval, provides deeper technical and policy context than the Cabinet decision summary. Key additional insights from the Backgrounder: The scheme's three-tier plant architecture: (1) Village-level small biogas units (2-10 m³/day, family scale, 10 lakh units targeted by 2030 – primarily for cooking gas, replacing LPG or firewood); (2) Cluster-level medium CBG plants (50-500 kg CBG/day, aggregating dung from 5-20 villages, supplying rural piped cooking gas networks or CNG stations); (3) City-scale large CBG plants (1+ tonne CBG/day, using MSW, sewage sludge, agro-industrial waste – integrated with city gas distribution networks). The Backgrounder also quantifies the fertiliser benefit: every tonne of organic material digested in a biogas plant produces 100 kg of biofertiliser; India's 15 MMT CBG target implies 1,500 lakh



| Click to Connect Now.



tonnes of biofertiliser annually – enough to replace 40-50% of India's chemical fertiliser use. This is the most underappreciated benefit of GOBARdhan: it is not just an energy scheme but a fertiliser self-sufficiency scheme. Additionally: the GOBARdhan Unified Registration Portal – where all biogas plants (village level to city level) register and become eligible for SATAT offtake agreements, carbon credits, and government incentives – is being operationalised. And the scheme explicitly includes the use of biogas plants for Swachh Bharat Mission 2.0 solid waste management – every CBG plant that processes MSW is simultaneously a waste management facility.

Key Terms:

Term	Definition
Three-tier plant architecture	Village (2-10 m ³ /day, cooking gas), Cluster (50-500 kg CBG/day, piped gas network), City-scale (1+ tonne/day, MSW/sewage, city gas grid) – three scales of GOBARdhan plants for different contexts
10 lakh village biogas units	GOBARdhan target for small household/village biogas units by 2030; each uses 25-50 kg dung/day; produces cooking gas for 1-2 families; slurry used as farm fertiliser; Lakhpati Didi women SHGs as operators
1,500 lakh tonnes biofertiliser	Biofertiliser from 15 MMT CBG production target; contains nitrogen, phosphorus, potassium in plant-available form; if realised, reduces India's chemical fertiliser import bill by Rs 30,000-40,000 crore annually
GOBARdhan Unified Registration Portal	Single portal for all biogas plant types to register; access SATAT offtake agreements (OMCs commit to buying CBG); access carbon credits; access GOBARdhan capital subsidies; tracks national CBG production capacity
Carbon credits from CBG	CBG plants earn carbon credits by: (1) capturing methane that would otherwise be emitted from open waste dumps; (2) replacing fossil fuels with renewable CBG; credits sold in voluntary carbon markets; additional revenue stream for plant operators
Swachh Bharat Mission 2.0	Phase II of SBM; solid waste management focus; MSW-based CBG plants simultaneously process solid waste (SBM goal) and produce energy (energy goal); GOBARdhan explicitly links the two – waste management as energy source
SATAT (Sustainable Alternative Towards Affordable Transportation)	2018 MoPNG scheme; Oil Marketing Companies commit to buying CBG at agreed prices from registered plants; provided demand certainty that enabled CBG industry to begin; GOBARdhan scales SATAT and adds capital support

Important Points for UPSC:



| Click to Connect Now.



- Fertiliser-energy nexus: The Backgrounder's 1,500 lakh tonne biofertiliser projection is transformative – India imports Rs 1.5-2 lakh crore worth of fertilisers annually; GOBARdhan's biofertiliser output would reduce this import burden while improving soil organic matter (chemical fertilisers degrade soil; bio-fertiliser improves it)
- NIPU-2026 + GOBARdhan: NIPU-2026 (Week 9) targets urea self-sufficiency through conventional means (PSU plant revival, coal gasification); GOBARdhan provides an alternative route to fertiliser self-sufficiency through biological means; the two schemes are complementary, not competing
- Compressed Biogas economics: CBG plant (500 tonnes/day feedstock) costs Rs 15-25 crore to build; payback period 5-7 years at current CBG prices; government capital subsidy (Rs 1 crore for small plants, up to Rs 5 crore for larger plants) under GOBARdhan reduces payback to 3-4 years
- Women SHG operators: Ministry of Women and Child Development has signed MoU with MoPNG for deploying women SHG members as GOBARdhan village plant operators; training programme of 30 days; operators earn Rs 5,000-8,000/month; directly creates rural women's energy enterprise
- Punjab stubble burning: 23 million tonnes of paddy stubble burned annually in Punjab alone; GOBARdhan plants can use paddy straw as feedstock (after pretreatment); government is co-locating GOBARdhan plants with Punjab rice mills to absorb stubble; each tonne of stubble used = one tonne not burned in fields = AQI improvement in Delhi in November
- Global comparison: China has 50 million household biogas units (world's most); Germany leads in large-scale biogas (8,000+ plants feeding the national grid); India's GOBARdhan targets both ends of the spectrum – scale of China's household model + quality of Germany's grid-connected model

PIB BACKGROUNDER — GI TAGS: SCALING TRADITIONAL WEALTH INTO GLOBAL BRANDS

Ministry: Ministry of Commerce & Industry / DPIIT / CGPDTM

PIB Date: 5th August 2026

Easy Explanation

India has 600+ Geographical Indications (GI) tags – the most of any country in the world. A GI tag is a sign used on products that have a specific geographical origin and possess qualities or a reputation attributable to that origin: Darjeeling tea (its unique 'muscatel' flavour comes from the specific altitude, rainfall, and soil of Darjeeling), Kanchipuram silk (its unique weaving technique and pure silk thread are specific to weavers in Kanchipuram), Alphonso mango (its flavour, colour, and sweetness are attributable to the specific climate of Ratnagiri-Sindhudurg coast). India's GI Act 1999 (came into force 2003) provides legal protection for such products – only authorised producers from the specified region can use the GI tag. The PIB Backgrounder for the 'GI & Beyond 2.0 Summit' (August 5, New Delhi) documents three challenges that India needs to solve to convert its 600+ GIs from a registry achievement into a trade asset: (1) Awareness: Most Indian consumers don't know what a GI tag means; most international buyers have never heard of India's GIs. (2) Enforcement: GI-tagged products are frequently



| Click to Connect Now.



counterfeited – fake Darjeeling tea, fake Kanchipuram silk sold at discount – diluting the brand premium. (3)
Export infrastructure: Most GI producers are artisans and small farmers with no export capability; they need packaging, certification, logistics, and market access support that they currently lack. The Backgrounder announces GI Melas, GI export hubs, and a GI-APEDA partnership to promote GI-tagged agricultural products internationally.

Key Terms:

Term	Definition
GI (Geographical Indication)	Sign on products having specific geographical origin and qualities attributable to that origin; India's GI Act 1999; CGPDTM (Controller General of Patents, Designs, Trade Marks) administers GI registry
India's 600+ GI tags	World's most GI tags; covers agricultural (Darjeeling tea, Alphonso mango, Basmati rice), handicrafts (Kanchipuram silk, Channapatna toys, Madhubani painting), manufactured (Kolhapuri chappals, Bikaneri bhujia)
GI Act 1999 / GI of Goods (Registration & Protection) Act	India's GI law; modelled on EU GI system; provides collective intellectual property rights to a community/region; GI certificate valid for 10 years, renewable indefinitely
CGPDTM	Controller General of Patents, Designs and Trade Marks; Chennai; GI Registry under CGPDTM; applicants are typically state governments, cooperatives, or producer associations
Darjeeling tea GI	India's first GI tag (2004); 'muscatel' character unique to Darjeeling's terroir (altitude 600-2,000 m, specific rainfall, fog, soil); worth Rs 600 crore annually; heavily counterfeited globally
GI vs trademark	Trademark: protects a brand owned by a company; GI: protects a geographical community's collective product identity; no single company can own a GI; any producer from the specified area meeting quality standards can use it
GI Mela	Government-organised exhibition of GI-tagged products; connects GI producers directly with consumers and buyers; held at major cities and international trade fairs; creates market without individual producers needing export infrastructure

Important Points for UPSC:

- Darjeeling tea counterfeiting: Of 80 million kg of 'Darjeeling tea' sold globally annually, only 10 million kg is actually grown in Darjeeling; 70 million kg is counterfeited; this dilutes the premium and reduces Darjeeling farmers' income; GI enforcement (DGHB – Darjeeling Growers' Himalayan Ban) works with Interpol to combat this





- EU comparison: EU has 3,500+ GI products (Protected Designation of Origin, Protected Geographical Indication, Traditional Speciality Guaranteed); EU GI products command 2-3x price premium over generic equivalents; EU's GI enforcement is systematic and backed by trade sanctions; India's GI system needs to move toward EU standards
- India-EU FTA + GI: The India-EU FTA (in progress, announced for 2026 signing) is expected to include mutual GI recognition – EU will protect Indian GIs in European markets; India will protect EU GIs (Champagne, Parma ham, Roquefort cheese) in Indian market; major FTA deliverable
- GI export data: India's GI-tagged product exports: Rs 5,000 crore (2023-24); target Rs 25,000 crore by 2030 (5x); Darjeeling tea, Basmati rice, Alphonso mango, Kashmir saffron, and Kanchipuram silk are the top 5 export earners among GI products
- Cross-border E-Commerce + GI: The Cross-border E-Commerce Framework (Art 2 this week) combined with GI tags creates a direct artisan-to-global-consumer pipeline; a Kalamkari artisan from Machilipatnam (GI tag) can sell directly on Etsy to international buyers who pay a premium for the GI-authenticated product
- National GI Mission: Backgrounder reveals India is working toward a 'National GI Mission' that would: centrally fund GI applications, provide quality testing infrastructure, support GI producers in obtaining international recognition, and create GI lounges at major airports and trade fairs – converting GI registry into a national branding infrastructure
- WIPO relevance: World Intellectual Property Organisation (WIPO) – Geneva – governs international IP including GI; India is a member; India is pushing at WIPO for stronger international GI protection (especially for traditional knowledge-based GI products) – connects to NBA ABS (Week 9) and TKDL (Week 7)

PIB BACKGROUNDER — DIGITAL TRANSFORMATION OF THE INDIAN JUDICIARY

Ministry: Ministry of Law and Justice / Department of Justice

PIB Date: 7th August 2026

Easy Explanation

India's judiciary has 5 crore pending cases – the world's largest judicial backlog by absolute numbers. The PIB Backgrounder on the Digital Transformation of the Indian Judiciary, released this week, provides the most comprehensive public account of what is being done about it through technology. The transformation has three generations: eCourts Phase I (2007-2015): computerised 14,000 district and subordinate courts; created Case Information System (CIS) tracking every case from filing to disposal; put court cause lists online. eCourts Phase II (2015-2023): created the eCourts Services Portal (16 crore+ cases searchable by litigants); enabled e-filing of cases (10 lakh+ e-filed cases); established 3,000+ video conferencing units for virtual hearings; created the National Judicial Data Grid (NJDG) – a live dashboard showing pendency statistics for every court in India. eCourts Phase III (2023-2027, Rs 7,000 crore): The current phase introduces AI into the judiciary. SUPACE (Supreme Court Portal for Assistance in Court Efficiency) – uses AI to process documents, identify legal issues in



| Click to Connect Now.



cases, and suggest relevant precedents to Supreme Court justices. LegRAA (Week 9) – NIC's AI legal research tool deployed at High Courts and District Courts. Virtual courts for traffic challans, minor offences – cases disposed without anyone physically appearing in court. Hybrid hearing model – parties can appear in person or via video link at their choice. The Backgrounder also covers the Fast Track Special Courts (FTSCs) for POCSO, sexual offences, and now paper leak cases (Week 9 Amendment Bill).

Key Terms:

Term	Definition
eCourts Mission Mode Project	Three phases (2007-2027); Rs 7,000 crore in Phase III; computerises all district and subordinate courts; creates national case management and litigant services infrastructure
NJDG (National Judicial Data Grid)	Live dashboard of all court pendency data; accessible at njdg.gov.in; shows pending cases by court, judge, case type, age; PM Modi cited NJDG as a transparency tool; data drives targeted case clearance drives
SUPACE	Supreme Court Portal for Assistance in Court Efficiency; AI tool for SC; processes case documents, identifies legal issues, suggests relevant precedents; assists SC registry in case management; not visible to public
Virtual Courts	Online courts for specific case types (traffic challans, Section 138 NI Act cheque bounce cases); no one appears in person; entirely online from notice to payment of fine; 3 crore+ cases disposed through virtual courts since 2020
Fast Track Special Courts (FTSCs)	Dedicated courts for POCSO (child sexual abuse cases), sexual offences against women, SC/ST atrocity cases; 755 FTSCs operational; disposed 2.5 lakh+ cases; now being extended to paper leak cases under 2026 Amendment
e-filing	Electronic filing of cases and documents; eliminates physical submission at court registries; 10 lakh+ cases e-filed annually; reduces time, cost, and corruption in case registration; mandatory for High Courts and certain case types
Video conferencing in prisons	Undertrials appear for court hearings via VC from prison; eliminates costly, dangerous prison-to-court transport; 3,000+ VC units in courts and 1,300+ in prisons; reduced undertrial transport accidents

Important Points for UPSC:

- 5 crore cases: Supreme Court 80,000+; 25 High Courts 60 lakh+; 3,000+ District/Subordinate Courts 4.4 crore+; cases 10+ years old: 1 crore+; India needs to dispose 5 crore cases quickly and also prevent the backlog from growing – technology addresses both





- Case pendency reduction: NJDG data shows: District Courts cleared 2.1 crore cases in 2025-26 vs 1.8 crore new cases filed = net reduction in pendency for the first time in years; eCourts technology enabling this through better scheduling, fewer adjournments, and virtual hearings
- Tele-Law: Legal aid service where beneficiaries in CSC (Common Service Centres) connect with panel advocates via video conferencing for free legal consultation; 40 lakh+ consultations; complementary to digital court infrastructure – access to justice beyond the courtroom
- DISHA 2.0 (Access to Justice): Rs 255 crore scheme for access to justice; Tele-Law, Lok Adalats, NALSA (National Legal Services Authority) expansion, legal aid clinics; LegRAA (Week 9) is the technology component; DISHA 2.0 is the institutional component of the same access-to-justice agenda
- Nyaya Setu app: Litigant-facing mobile app showing their case status, next hearing date, judge's orders – directly from NJDG; 2 crore+ downloads; eliminates the practice of paying court touts for case status information
- AI adjudication concerns: Backgrounder acknowledges the tension between AI assistance (SUPACE, LegRAA) and judicial independence; India's position: AI assists judges, never replaces them; final decisions are always human; this is consistent with global best practice on AI in judiciary
- India as a model: Countries with large, complex judicial systems – Nigeria, Bangladesh, Kenya – are studying India's eCourts model for replication; India's judiciary technology has become a governance export product similar to UPI in payments

PIB BACKGROUNDER — INDIA'S SOLAR GROWTH ENTERS A NEW ERA

Ministry: Ministry of New and Renewable Energy

PIB Date: 3rd August 2026

Easy Explanation

The PIB Backgrounder 'India's Solar Growth Enters a New Era' was released one month after India crossed 100 GW solar capacity (June 2026) and provides a comprehensive account of how this happened and where it is going. India's solar story in four phases. Phase 1 (2010-2015): Jawaharlal Nehru National Solar Mission (JNNSM); 20 GW target by 2022; slow start – only 3.7 GW achieved by 2014; solar was expensive (\$4/watt) and grid integration was a challenge. Phase 2 (2015-2020): Ultra Mega Solar Parks programme; government-developed solar parks (Pavagada 2,050 MW, Kurnool 1,000 MW, Bhadla 2,245 MW) reduced land acquisition and grid connectivity barriers for developers; reverse auctions drove prices from Rs 7.50/kWh to Rs 2.00/kWh. Phase 3 (2020-2024): PLI for Solar PV Modules (Rs 24,000 crore, now Rs 24,000 crore); manufacturing push – India's solar module production went from near-zero to 40+ GW/year; import duty on Chinese solar cells (25%) and modules (40%) protected domestic manufacturers; 'Approved Models and Manufacturers' list prevented low-quality Chinese imports. Phase 4 (2024-2030): 'New era' – the Backgrounder describes this phase as integration and storage: PM Surya Ghar (rooftop solar + net metering for households), PM-SSY (floating solar on reservoirs), offshore wind (new), and most importantly – storage integration. Solar without storage is intermittent; with storage



| Click to Connect Now.



it is dispatchable. The Backgrounder sets a specific target: by 2030, every new solar project above 100 MW must have co-located storage.

Key Terms:

Term	Definition
JNNSM (Jawaharlal Nehru National Solar Mission)	Launched 2010; Phase 1 target 1 GW, Phase 2 target 10 GW, Phase 3 target 20 GW by 2022; actual achievement by 2022: 60+ GW; mission exceeded target by 3x; evolved into broader solar policy framework
Ultra Mega Solar Parks	Government-developed large solar zones with pre-arranged land, grid connectivity, and evacuation; developers just install panels; Bhadla (Rajasthan, 2,245 MW), Pavagada (Karnataka, 2,050 MW), Kurnool (AP, 1,000 MW)
Reverse Auction mechanism	Solar power price discovery through competitive bidding; government/discoms announce capacity; developers bid the lowest tariff they can supply power at; drove solar tariff from Rs 7.50 (2014) to Rs 1.99 (2023) – 73% fall in 9 years
PLI for Solar PV Modules	Rs 24,000 crore PLI; incentivises domestic manufacturing of high-efficiency solar modules; India's module manufacturing: 5 GW (2020) → 40 GW (2026) → target 100 GW by 2030; reduces import dependence on China
PM Surya Ghar Muft Bijli Yojana	Rooftop solar scheme; 1-3 kW systems for households; 300 units free electricity per month; crossed 50 lakh installations (August 2026 milestone from Parliamentary Q); subsidy up to Rs 78,000; net metering allows selling surplus electricity
Co-located storage mandate	Backgrounder announces: new solar projects >100 MW must have battery storage co-located; storage = 2-4 hours of project capacity; makes large solar projects dispatchable; prevents grid destabilisation from solar intermittency
Offshore wind	New frontier; India's first offshore wind tender (1 GW, Gujarat coast) issued 2023; offshore wind is stronger and more consistent than onshore; Tamil Nadu and Gujarat coastlines have best potential; 30 GW offshore wind target by 2030

Important Points for UPSC:

- 100 GW solar milestone: India crossed 100 GW solar in June 2026 – only China (800+ GW) and USA (200+ GW) have more; India did this in 12 years from near-zero (2014: 2.6 GW); rate of addition: 20-25 GW/year currently; target 300 GW solar by 2030
- Price fall story: Solar tariff in India: Rs 7.50/kWh (2014) → Rs 3.50/kWh (2018) → Rs 2.00/kWh (2021) → Rs 1.99/kWh (lowest discovered, 2023); now rising slightly (Rs 2.50-3.00) due to module prices and storage requirements; still cheaper than new coal plants (Rs 4-5/kWh)





- Manufacturing reversal: India imported 80%+ of solar modules from China in 2020; import duty (25% on cells, 40% on modules) + PLI = domestic manufacturing boom; Adani Solar, Waaree, Vikram Solar, Tata Power Solar – all expanded to GW-scale; China import share fell to 30% by 2026
- 50 lakh PM Surya Ghar installations: Average 2 kW system per household = 10 GW of rooftop solar; free 300 units/month = typical Indian household's monthly consumption; scheme reduces household electricity bills to zero for those within 300 units; 50 lakh = 10% of India's 5 crore urban households – significant scale
- Floating solar + agriculture: Agrivoltaics (combining solar panels with crop cultivation) is a new focus in the Backgrounder; panels provide shade (reducing water evaporation by 20%), generate electricity, and crops grow underneath; Gujarat, Rajasthan are piloting agrivoltaics
- Storage integration economics: Battery storage adds Rs 1.5-2.00/kWh to solar cost; solar + storage at Rs 3.50-4.00/kWh is competitive with peaking power plants (diesel, gas: Rs 6-8/kWh); co-located storage mandate makes solar firm power – the final step in solar becoming coal's complete replacement

PIB BACKGROUNDER — PM VIKSIT BHARAT ROJGAR YOJANA (PM-VBRY)

Ministry: Ministry of Labour & Employment

PIB Date: 2nd August 2026

Easy Explanation

India's most pressing economic challenge is creating formal employment for its 1 crore+ new workforce entrants every year – young people entering the job market who need jobs with EPFO (Employees' Provident Fund Organisation) coverage, not just any work. The informal economy (where no social security, no minimum wage enforcement, and no job security exists) absorbs most of India's workforce, but formal employment is what genuinely improves workers' lifetime economic security. PM Viksit Bharat Rojgar Yojana (PM-VBRY) – announced in Union Budget 2024-25 and now in full implementation – is specifically designed to incentivise employers to hire NEW formal sector workers and register them with EPFO. The scheme has three components: (A) First-Timers Scheme: For every new EPFO member whose monthly salary is below Rs 1 lakh, the government pays the employee's EPF contribution (12% of salary) for the first year directly to their EPF account – reducing the cost of formal employment for both employer and employee. (B) Job Creation in Manufacturing: For new hires in the manufacturing sector, the government pays BOTH the employer's and employee's EPFO contributions (24% of salary) for 2 years – a very strong incentive to hire in manufacturing specifically. (C) Employer Support Scheme: For employers who increase their total EPFO-registered workforce by 10%+, the government reimburses the employer's EPFO contribution for all new hires – rewarding employment growth at the firm level. The Backgrounder reveals: 18 lakh new EPFO members registered under PM-VBRY in the first 9 months.

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



PM-VBRY	PM Viksit Bharat Rojgar Yojana; Budget 2024-25 announcement; incentivises formal sector employment; three components: first-timers EPF contribution subsidy, manufacturing hiring incentive, employer growth support
EPFO (Employees' Provident Fund Organisation)	India's largest social security organisation; manages provident fund (PF), pension (EPS), and insurance (EDLI) for formal sector workers; Rs 25 lakh crore corpus; 7 crore+ active members
EPF contribution	Employee contributes 12% of basic salary to EPF; employer contributes 12% (8.33% to EPS pension, 3.67% to EPF); government contributes employer's share under PM-VBRY for eligible new hires
Formal vs informal employment	Formal: EPFO-registered, minimum wage enforced, social security, job security protections; informal: unregistered, no social security, no minimum wage guarantee; 90%+ of India's workforce is informal – PM-VBRY aims to shift this ratio
Manufacturing incentive	Government pays 24% of salary (both employer + employee EPFO contribution) for new manufacturing hires for 2 years; makes manufacturing labour 24% cheaper for 2 years – significant incentive for labour-intensive manufacturing expansion
18 lakh new EPFO members	PM-VBRY's 9-month achievement; 18 lakh workers newly registered with EPFO; manufacturing sector accounts for 40% of new registrations; largest growth in apparel, electronics, and food processing
ABPS (Aadhaar-Based Payment System)	EPFO payment system using Aadhaar for direct credit; PM-VBRY disbursements go through ABPS; ensures government subsidy reaches actual worker's EPF account, not employer's account

Important Points for UPSC:

- Employment challenge: India needs 1 crore+ new formal jobs annually; EPFO adds 15-20 lakh new members per year organically; PM-VBRY adds 18+ lakh in 9 months = 24 lakh annualised rate; if sustained, this doubles the rate of formal employment creation
- Manufacturing focus rationale: Manufacturing creates 3x more indirect jobs than services per direct hire; labour-intensive manufacturing (textiles, footwear, electronics assembly) is where most of India's new formal jobs can come from; the 24% salary subsidy for 2 years specifically targets this sector
- Wage ceiling of Rs 1 lakh: PM-VBRY targets workers earning below Rs 1 lakh/month – the vast majority of India's entry-level and semi-skilled workers; excludes managerial and high-skill white-collar positions (which don't need government incentivisation for formal registration)





- Demand-side labour policy: Most India employment programmes are supply-side (skilling workers); PM-VBRY is demand-side – it pays employers to hire; evidence from similar programmes in Brazil (PAYG subsidy) and South Korea (Employment Security Programme) shows demand-side subsidies are more effective than supply-side training for formal employment creation
- Connection to PLI: PLI schemes (electronics, textiles, food processing) have attracted manufacturing investment; PM-VBRY complements PLI by reducing the labour cost of this new manufacturing capacity – PLI attracts the factory, PM-VBRY makes hiring workers in the factory cheaper
- ESIC link: Employees' State Insurance Corporation provides health insurance to formal workers earning below Rs 21,000/month; PM-VBRY registration with EPFO automatically triggers ESIC coverage – newly formalised workers get health insurance alongside provident fund, a complete social security package

PIB BACKGROUNDER — THE MAKING OF A SPORTING NATION (CWG 2026 UPDATE)

Ministry: Ministry of Youth Affairs & Sports

PIB Date: 7th August 2026

Easy Explanation

India's performance at Commonwealth Games 2026 (Glasgow) has been exceptional by historical standards – and the PIB Backgrounder 'The Making of a Sporting Nation' (the same series we covered in Week 9, now updated with live CWG 2026 medal data) provides the context for understanding why. India's medal tally at CWG 2026 as of the Backgrounder's release: 29 medals (11 gold, 9 silver, 9 bronze) – including an extraordinary boxing performance where Indian boxers won 9 medals (6 gold, 2 silver, 1 bronze). The boxing gold rush: Ankush Panghal (80 kg), Sachin Siwach (60 kg), Arundhati Choudhary (70 kg), Priya Ghangas (60 kg), Sakshi (51 kg), Jasmine Lamboria (57 kg), Preeti (54 kg) – 7 boxing golds in a week. This is not coincidence. The Backgrounder documents the specific investments that produced these results: the Boxing Federation of India's high-performance programme, funded under TOPS (Target Olympic Podium Scheme), provided 18 boxers with foreign coaches (including Cuban and Kazakh boxing coaches who have Olympic experience), science support (heart rate monitoring, altitude training at Spiti), and international competition exposure (24 international competitions in 2024-25 for top boxers). The broader CWG context: India fielded 215 athletes at CWG 2026 – 40 were TOPS athletes, 80 were Khelo India scholarship recipients; the correlation between TOPS/Khelo India support and medal performance is direct and visible. The Backgrounder uses this to argue for the CWG performance being a 'proof of concept' for India's structured sports investment pipeline.

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



CWG 2026 (Glasgow)	Commonwealth Games 2026; Glasgow, Scotland; India's medal tally: 29 medals (11G, 9S, 9B) as of Backgrounder release; dominated boxing and para-athletics; 215 Indian athletes competed
Boxing Federation of India (BFI)	National sports federation for boxing; suspended by World Boxing for non-compliance, then reinstated; improved governance has enabled high-performance programme; TOPS-funded foreign coaches critical to CWG 2026 success
TOPS athletes at CWG 2026	40 of India's 215 CWG athletes were TOPS-supported; 30+ medals came from TOPS or Khelo India alumni; validates the structured pipeline from Khelo India (grassroots) → SAI Centres (elite junior) → TOPS (elite senior)
Cuban boxing coaches	Cuba is a boxing superpower (most Olympic boxing golds in history); India hired Cuban boxing coaches (Carlos Cobo and team) for its national boxing programme; their technical expertise in orthodox stance, combination punching, and defence directly improved Indian boxers' performance
National Sports Federation Conclave 2026	Sports Minister Mansukh Mandaviya chaired NSF Conclave this week; called for transparent athlete selection, age-limit compliance, and democratic elections within NSFs; NSF governance reform is ongoing – poor governance has historically undermined India's sports performance
Khelo India to TOPS pipeline	Khelo India identifies and funds talented athletes at U-14, U-17, U-21 levels; best performers advance to SAI National Centres of Excellence; top performers at SNICE qualify for TOPS; CWG 2026 medals validate the pipeline is working
Paralympic + CWG Para Games	India sent 40 Para athletes to CWG 2026; Soman Rana (Shot Put F57 gold), Shubham Juyal (Shot Put F57 silver), Selva Prabhu Thirumaran (bronze) – Para sports integration into mainstream sports investment is yielding results

Important Points for UPSC:

- India's boxing transformation: India had near-zero boxing medals before 2000; MC Mary Kom and Vijender Singh pioneered the sport's popularity; Khelo India Boxing expanded the base; TOPS provided elite coaching; result: India now wins boxing medals at every major competition – CWG 2026 boxing haul is the peak expression of 25 years of investment
- Glasgow CWG significance: CWG 2026 was the first CWG in Glasgow since 2014 (also Glasgow); India improved from 64 medals in 2014 Glasgow to 75+ medals in 2026 Glasgow – same city, 12-year improvement, visible in medal count and quality
- Sports economy: India's sports sector is Rs 30,000 crore currently; target Rs 1 lakh crore by 2030; CWG 2026 visibility boosts sports participation and the associated sports goods, fitness, and media industries – sports performance has measurable economic multipliers





- NSF governance crisis: Several NSFs (Wrestling Federation, Athletics Federation, Shooting Federation) have faced governance controversies – courts intervening, elections disputed, administrators refusing to step down; Sports Code 2011 and National Sports Development Code are the regulatory frameworks being enforced more actively post-CWG 2026
- Women's boxing dominance: 6 of India's 7 boxing golds at CWG 2026 were won by women; India's women boxers (Arundhati Choudhary, Sakshi, Jasmine Lamboria, Preeti) are now world-class competitors; 20 years after MC Mary Kom, the pipeline she inspired has produced a generation of world-competitive Indian women boxers
- LA 2028 Olympics projection: India's realistic medal targets for LA 2028: Athletics (Neeraj Chopra javelin gold + 2-3 other field events), Wrestling (3-4 medals), Shooting (2-3 medals), Badminton (1-2 medals), Boxing (1-2 medals), Weightlifting (1) = 10-15 medal realistic ceiling; CWG 2026 serves as a benchmark for this projection

NATIONAL HANDLOOM DAY 2026 + NETFLIX-CULTURE-TOURISM PARTNERSHIP

Ministry: Ministry of Textiles / Ministry of Tourism / Ministry of Culture

PIB Date: 7th August 2026

Easy Explanation

August 7 is National Handloom Day – chosen to commemorate the Swadeshi Movement launched on August 7, 1905, when India's leaders called on citizens to boycott British goods and support Indian handicrafts and handlooms as a form of non-violent resistance to colonial rule. President Droupadi Murmu presided over the 12th National Handloom Day celebrations, presenting the Sant Kabir Handloom Awards and National Handloom Awards 2025 to outstanding weavers. The ceremony was the occasion for two significant announcements. First, the inauguration of the Centre of Excellence for Handloom Technology at IIT Delhi – a research centre specifically for applying advanced technology (AI for pattern generation, biofabrication for sustainable dyeing, smart looms that maintain traditional patterns while increasing productivity) to the handloom sector. This bridges the craft-technology gap: handloom weavers will get access to AI-designed patterns tailored to international market preferences, while retaining the hand-weaving process that makes handloom valuable. Second, the Ministry of Tourism and Ministry of Culture signed an MoU with Netflix to showcase India's cultural heritage and tourism destinations through authentic storytelling. Netflix has 250 million global subscribers; India's cultural content (OTT documentaries on handloom clusters, heritage crafts, tribal art forms) reaching Netflix's global audience is a soft power and tourism promotion tool of unprecedented scale. The Netflix MoU includes production support for documentaries on 10 GI-tagged handloom clusters (Kanchipuram silk, Pochampally ikat, Patan Patola, Chanderi, Banaras brocade among them).

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



National Handloom Day	August 7; commemorates Swadeshi Movement launch (August 7, 1905); declared by Government of India in 2015; 12th National Handloom Day in 2026; President presents Handloom Awards
Sant Kabir Handloom Awards	Highest honour in Indian handloom sector; named after Sant Kabir (saint-poet, mystic weaver who wore the garments of his craft into his spiritual philosophy); presented by President on National Handloom Day
Centre of Excellence for Handloom Technology, IIT Delhi	New research centre at IIT Delhi; applies AI pattern generation, sustainable dyeing, smart loom technology to handloom sector; bridges craft tradition with modern technology
Swadeshi Movement 1905	Launched August 7, 1905 in response to Partition of Bengal (Lord Curzon's 1905 decision to divide Bengal); Indians boycotted British goods and promoted Indian manufactures; handloom was central – wearing Indian khadi/handloom was a political act
Netflix MoU	Ministry of Tourism + Ministry of Culture + Netflix; documentaries on India's cultural heritage, handloom clusters, tourism destinations; reaches Netflix's 250 million global subscribers; most ambitious OTT-based tourism promotion agreement India has signed
Handloom sector data	35 lakh handloom weavers (world's largest handloom sector); Rs 31,000 crore annual production; 15% of textile exports; predominantly rural, predominantly women weavers; GI-tagged handloom products command premium globally
AI for handloom patterns	Centre of Excellence will develop AI tools that generate design patterns matching current international fashion trends while respecting traditional motifs; weavers access AI patterns through tablet, weave them on traditional looms – technology serving craft, not replacing it

Important Points for UPSC:

- August 7 historical significance: The Swadeshi Movement began on August 7, 1905 with mass meetings across Bengal condemning the Partition; leaders including Bal Gangadhar Tilak, Bipin Chandra Pal, Lala Lajpat Rai called for boycott of British goods and promotion of Indian industry – handloom as resistance was born
- Sant Kabir: 15th century saint-poet; Varanasi; born into a Muslim weaver family; his poetry transcended caste and religion; his verses on the loom are among the most celebrated in Indian literature ('Jheeni jheeni





beeni chadariya'); naming the award after him honours the spiritual-craft tradition of India's weaving communities

- 35 lakh weavers: India's handloom sector is the world's largest; 70% are women; most are from SC, ST, and OBC communities; handloom is India's most inclusive cottage industry – but faces competition from power loom (which can copy handloom patterns at 10x speed and 1/5th cost)
- Netflix India cultural content: India already has successful Netflix original content (Sacred Games, Delhi Crime, RRR); the new MoU extends this to non-fiction cultural content about handloom and heritage; international audiences discovering Kanchipuram silk or Banaras brocade through Netflix = direct demand generation for Indian handloom exports
- IIT Delhi Centre of Excellence: Handloom weavers create patterns by memory and tradition; their patterns are not in digital format and not searchable; the Centre will digitise 10,000+ traditional handloom patterns into a design library; AI will combine these with international fashion trends; weavers will produce globally marketable products without abandoning their craft
- GI + Netflix + e-commerce: GI-tagged handloom products (Backgrounder in Art 24 today) + Netflix documentary visibility + Cross-border E-Commerce Framework (Art 2 today) = complete supply chain from craft to global consumer; the three articles this week are pieces of the same puzzle
- National Handloom Mission: Government provides subsidies for yarn, design development, marketing, and credit to handloom weavers; Rs 500+ crore annual budget; Weaver Service Centres in textile clusters; National Centre for Textiles Design at NID Ahmedabad – all components of the handloom support ecosystem





HONORARY MENTIONS

Facts that didn't make the article cut – but are exactly the kind of one-liners UPSC drops in a statement-based question.

Topic	Key Fact	UPSC Angle
GeM Decade	Government e-Marketplace completed 10 years; cumulative Gross Merchandise Value exceeded Rs 20 lakh crore; 65,000+ buyer organisations; 70 lakh+ sellers including MSMEs and women entrepreneurs.	GS-II governance; public procurement reform; UPSC has asked about GeM's role in reducing corruption in government procurement.
PM Surya Ghar Muft Bijli Yojana	Crossed 50 lakh rooftop solar installations (August 2026); households receive 300 free electricity units/month; subsidy up to Rs 78,000; integrates with net metering – surplus electricity sold to the grid.	GS-III energy; Prelims: correct full scheme name + 300 units threshold are frequently tested facts.
Nasha Mukta Yuva Abhiyan	PM Modi launched 'Nasha Mukta Yuva for Viksit Bharat Sankalp Abhiyan' on August 2; targets drug-free youth by 2047; 5 lakh+ youth pledged in first week; implemented through MY Bharat platform (2.46 crore youth registered).	GS-II social justice; connects to NDPS Act, de-addiction programmes, NMBA (Nasha Mukta Bharat Abhiyaan) which has reached 29 crore people.
MSME Amendment Bill 2026	Passed by Parliament (7th Aug); revises MSME definition upward; improves access to ECLGS (Emergency Credit Line Guarantee Scheme) and SIDBI credit; strengthens ZED (Zero Defect Zero Effect) certification framework.	GS-III economy; MSME definition revision is a recurring UPSC theme – know investment + turnover thresholds for Micro, Small, Medium.
No Manual Scavengers Survey	Fresh nationwide survey (2024-25) under MS Act 2013 found zero manual scavengers; 766 deaths during sewer cleaning in past 5 years acknowledged; SC/ST communities disproportionately affected historically.	GS-II social justice; MS Act 2013, Safai Karamchari Andolan, Supreme Court orders on manual scavenging are directly testable.
India-Bhutan Trans-border Rivers	High-level bilateral meeting between Royal Bhutan Government and India's Jal Shakti Ministry; covers Manas, Sankosh, Torsa, and other rivers originating in Bhutan and flowing into India; joint flood monitoring and data sharing.	GS-II international relations; India shares rivers with Bhutan, Nepal, Bangladesh, Pakistan, China – each bilateral arrangement is distinct and frequently examined.





Topic	Key Fact	UPSC Angle
Jal Jeevan Mission 2.0	JJM 2.0 gaining momentum; targets safe drinking water to all remaining unconnected rural households by 2028; 15 crore+ tap connections made under JJM (original); 2.0 focuses on quality, sustainability, and operations.	GS-II governance; JJM original target (100% coverage by 2024) not fully met; JJM 2.0 is the next phase – distinction between phases is testable.
BRICS Anti-Corruption Working Group	2nd BRICS Anti-Corruption Working Group Meeting held in Hyderabad (4-5 August) under India's BRICS Chairship 2026; focuses on asset recovery, denial of safe haven to corruption proceeds, and financial crime cooperation.	GS-II international relations; India's BRICS Chairship 2026 – list all ministerial meetings held under it; anti-corruption is a new BRICS cooperation domain.
Har Ghar Tiranga 2026	Campaign to display National Flag at every home, August 9-17; Flag Code amended 2022 to allow machine-made polyester flags (previously only khadi); 24-hour display now permitted; 25 crore+ flags distributed in previous editions.	GS-I polity; Flag Code of India 2002 + 2022 amendment specifics are prelims-worthy; connects to Prevention of Insults to National Honour Act.
4-lane Guwahati-Tezpur Highway	CCEA approved 4-lane highway from Baihata Chariali (near Guwahati) to Tezpur along NH-15 in Assam; 135.87 km total project length; Rs 8,970 crore cost; significant Northeast connectivity project.	GS-III infrastructure; NH-15 is Assam's key arterial highway; Northeast connectivity projects are heavily tested in UPSC given Act East Policy context.
Clouded Leopard state animal	Clouded Leopard (<i>Neofelis nebulosa</i>) is the state animal of Meghalaya; found in Northeast India; Schedule I species under WPA 1972; India's 5th largest wild cat after tiger, lion, leopard, snow leopard.	GS-III environment; state animal + Schedule I status + distribution = classic multi-statement Prelims question.
PFBR pre-criticality	Prototype Fast Breeder Reactor at Kalpakkam, Tamil Nadu is in pre-criticality phase; operated by BHAVINI; 500 MW capacity; criticality expected 2026-27; India's Stage 2 nuclear programme gateway.	GS-III nuclear energy; India's 3-stage nuclear programme is a perennial UPSC favourite – know Stage 1 (PHWR), Stage 2 (FBR/PFBR), Stage 3 (AHWR/thorium).
Lokmanya Tilak National Award 2026	NSA Ajit Doval received Lokmanya Tilak National Award 2026; award given annually since 1983 by Tilak Smarak Mandir Trust, Pune on Tilak's death anniversary (August 1); past recipients	GS-I modern history; Lokmanya Bal Gangadhar Tilak – Swaraj is my birthright; Home Rule Movement; Swadeshi Movement; Kesari and





Topic	Key Fact	UPSC Angle
	include PM Modi, Dr APJ Abdul Kalam, Sharad Pawar.	Mahratta newspapers – testable in full.
India at FAIR	India contributing critical equipment (superconducting solenoid magnets by BARC/VECC, beam diagnostics by RRCAT) to FAIR – Facility for Antiproton and Ion Research, Darmstadt, Germany; world's largest heavy-ion accelerator under construction.	GS-III science; India's participation in international mega-science (CERN, ITER, SKA, FAIR) is UPSC-relevant; VECC and RRCAT are frequently appearing in PIB – know what they do.
IPC WHO SEARO Recognition	Indian Pharmacopoeia Commission (Ghaziabad) recognised as Regional Centre of Excellence in Pharmacovigilance and Technical Centre in Quality of Medicines by WHO SEARO (South-East Asia Regional Office); will train 11 SEARO member countries.	GS-II health; IPC publishes Indian Pharmacopoeia; pharmacovigilance = monitoring drug safety post-approval; PvPI (Pharmacovigilance Programme of India) feeds into WHO VigiBase – all UPSC-relevant connections.
Quantum Networks – CSIR	CSIR scientists published a blueprint for efficiently connecting quantum networks – a key step toward quantum internet; quantum key distribution (QKD) for unhackable communication is the practical application.	GS-III science & technology; quantum communication, quantum computing, QKD are increasingly featured in UPSC Mains S&T questions; India's National Quantum Mission (Rs 6,000 crore) is the policy context.
Nano-robots – breast cancer	CSIR researchers developed light-activated nano-robots for targeted breast cancer therapy; nano-robots are activated only in cancer cells (by light), reducing collateral damage to healthy tissue; lab-tested, clinical trials pending.	GS-III science; nanomedicine, targeted drug delivery, and cancer treatment technologies are S&T Mains staples; CSIR's role in biomedical research is underappreciated.
Article 370 – 7th anniversary	PM Modi marked 7 years since abrogation of Articles 370 and 35A (August 5, 2019); J&K reorganised into two UTs (J&K and Ladakh); Delimitation Commission completed; J&K Assembly elections held 2024.	GS-II polity; Article 370 abrogation mechanism (Presidential Order, Constituent Assembly not in session, Rajya Sabha + Lok Sabha resolutions) – testable in detail in Mains.
Silkyara Rat Miners –	12 rat miners who rescued 41 workers trapped in Silkyara tunnel (Uttarakhand, 2023) received	GS-II governance/ethics; gallantry awards hierarchy: Param Vir Chakra





Topic	Key Fact	UPSC Angle
Sarvottam Jeevan Raksha Padak	Sarvottam Jeevan Raksha Padak – India's highest peacetime gallantry award for saving lives; PM presented awards.	(war), Ashok Chakra (non-war), Mahavir Chakra, Kirti Chakra, Sarvottam Jeevan Raksha Padak (civilian life-saving) – know the ladder.
India-Rwanda JTC	India and Rwanda held their First Joint Trade Committee meeting; India-Africa bilateral trade is \$100 billion; Rwanda is a gateway to East African Community (300 million people); Rwanda is Africa's 2nd easiest country to do business in (World Bank 2020).	GS-II international relations; India's Africa engagement – IAFS (India-Africa Forum Summit), Lines of Credit, individual JTCs; Rwanda's post-genocide economic transformation is also a GS-I history-economy crossover topic.





PRACTICE QUESTIONS

10 PRELIMS QUESTIONS — UPSC PRELIMS STYLE

Q1. With reference to the GOBARdhan scheme approved by Cabinet on 6th August 2026, consider the following:

1. GOBARdhan stands for Galvanising Organic Bio-Agro Resources Dhan.
2. It targets production of 15 MMT of Compressed Biogas (CBG) annually by 2030.
3. The digestate (bio-slurry) produced is rich in nitrogen, phosphorus, and potassium and can substitute chemical fertilisers.
4. CBG is chemically different from CNG and requires special modifications in vehicles to use.

How many of the above are correct?

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

Q2. The Inventory-based Cross-border E-Commerce Export Framework notified under FTP 2023 primarily benefits:

- (a) Large exporters who ship full containers of goods to a single international buyer
- (b) MSMEs, artisans, and small producers who sell individual items to international consumers through e-commerce platforms
- (c) Foreign e-commerce companies importing goods into India under preferential duty rates
- (d) Indian importers seeking simplified customs clearance for goods purchased from international online marketplaces

Q3. The Agni-4 ballistic missile test-fired this week is best described as:

- (a) A cruise missile with a range of 4,000 km, powered by a turbojet engine and guided by GPS
- (b) A two-stage solid-fuel Intermediate-Range Ballistic Missile (IRBM) with a range of approximately 4,000 km
- (c) A submarine-launched ballistic missile (SLBM) tested from INS Arihant's launch tube
- (d) A hypersonic glide vehicle that travels at Mach 5+ throughout its flight path

Q4. Glaw Lake, which became India's 101st Ramsar site, is located in which district of Arunachal Pradesh?

- (a) Papum Pare





- (b) Lower Subansiri
- (c) Tawang
- (d) West Kameng

Q5. Consider the following about the Chandipura Virus (CHPV):

1. It belongs to the Rhabdoviridae family – the same family as the rabies virus.
2. It is transmitted by Phlebotomus sandflies and predominantly affects children under 15.
3. Its Case Fatality Rate (CFR) of 55-75% in confirmed paediatric encephalitis cases makes it one of India's deadliest endemic viruses.
4. CHPV is transmissible from infected pigs to humans, making pig farmers a high-risk group.

Which of the above 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. Pingali Venkayya, who is associated with designing the prototype of India's National Flag, was born in which city?

- (a) Vijayawada
- (b) Nellore
- (c) Machilipatnam
- (d) Visakhapatnam

Q7. The USBRL (Udhampur-Srinagar-Baramulla Rail Link) includes which of the following engineering superlatives?

1. The Chenab Railway Bridge – the world's highest railway bridge at 359 metres above the river bed.
2. 38 tunnels totalling 119 km – nearly half the 272 km route is underground.
3. The T-49 tunnel – the longest railway tunnel in India.
4. The first use of maglev (magnetic levitation) technology in Indian Railways.

How many are correct?

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





Q8. With reference to the Prototype Fast Breeder Reactor (PFBR) at Kalpakkam, consider the following:

1. It is India's gateway to Stage 2 of India's 3-stage nuclear programme.
2. It is operated by BHAVINI (Bharatiya Nabhikiya Vidyut Nigam Limited).
3. It uses thorium as its primary fuel and plutonium as a breeding material.
4. India would be the 6th country to operate a fast breeder reactor upon PFBR achieving criticality.

Which 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

Q9. The IndiaAI Mission was launched with an outlay of:

- (a) Rs 6,000 crore – same as the National Quantum Mission
- (b) Rs 10,372 crore in March 2024, covering compute infrastructure, frontier AI research, datasets platform, AI governance, skilling, startups, and safe AI
- (c) Rs 19,744 crore – the same as the National Green Hydrogen Mission
- (d) Rs 7,000 crore – the same as eCourts Phase III

Q10. National Handloom Day is observed on August 7 to commemorate:

- (a) The birthday of Mahatma Gandhi, who promoted hand-spinning as a symbol of self-reliance
- (b) The launch of India's first Five Year Plan which included handloom as a priority sector
- (c) The launch of the Swadeshi Movement on August 7, 1905, which promoted Indian handloom as resistance to colonial goods
- (d) India's first National Textile Policy of August 7, 1985, which gave statutory recognition to handloom weavers

2 MAINS QUESTIONS WITH MODEL ANSWERS

MAINS QUESTION 1 – 150 WORDS:

GOBARdhan's Rs 23,731 crore for compressed biogas and India's Rs 23,731 crore outlay are being presented as a clean energy scheme. A critic argues that biogas is not genuinely 'clean' – the combustion of CBG still releases CO₂. Evaluate this criticism and examine whether GOBARdhan qualifies as a climate action measure under India's NDC framework.



| Click to Connect Now.

**MODEL ANSWER — 150 WORDS:**

The criticism is technically accurate but analytically incomplete. CBG combustion does release CO₂ – but climate accounting is about net emissions over the full lifecycle, not just combustion. The correct comparison: organic waste (cattle dung, paddy straw, MSW) left to decompose openly releases methane directly – a greenhouse gas 80x more potent than CO₂ over 20 years. When this same waste is digested in a GOBARdhan plant, the methane is captured and combusted to produce CO₂. The net greenhouse effect is dramatically lower: CO₂ from combustion vs methane from open decomposition – CBG wins decisively. Under India's updated NDC (2022), India committed to 45% reduction in emissions intensity of GDP by 2030 and 50% non-fossil electricity capacity by 2030. GOBARdhan contributes to both: it reduces methane emissions (emissions intensity target) and produces 15 MMT of CBG replacing fossil LNG (non-fossil energy target). The scheme also qualifies under the 'carbon market' component of India's NDC – each GOBARdhan plant earns carbon credits by preventing methane release, which are tradeable under Article 6 of the Paris Agreement. The critic's more valid concern: CBG is biomass-based, and industrial-scale biomass energy can compete with food production if feedstock is diverted from agriculture to energy. GOBARdhan addresses this by using waste feedstock (dung, straw, MSW) – materials with no competing food use – which makes it genuinely circular rather than land-use competitive.

MAINS QUESTION 2 — 250 WORDS:

India's judiciary is simultaneously one of the world's most overloaded and one of the most actively digitising. Using the Digital Transformation of the Indian Judiciary backgrounder and LegRAA (Week 9) as your primary sources, examine whether technology can solve India's judicial pendency crisis – or whether it merely accelerates a system that has structural problems deeper than technology can address.

MODEL ANSWER — 250 WORDS:

Technology is necessary but insufficient for solving India's judicial pendency – a distinction worth making carefully. On the 'technology helps' side, the evidence is clear. eCourts Phase I-III has computerised 14,000 courts, created NJDG (enabling targeted case clearance drives), established 3,000+ video conferencing units (reducing adjournments due to undertrial transport delays), and enabled e-filing (reducing procedural delays in case registration). Virtual courts have disposed 3 crore+ traffic challan and minor offence cases without any physical hearing – removing these from the backlog entirely. SUPACE (AI for Supreme Court) and LegRAA (AI for High Courts and District Courts) can reduce the time a judge spends on legal research from hours to minutes – directly increasing judicial productivity. Fast Track Special Courts (POCSO, sexual offences) demonstrate that structural targeted intervention, enabled by technology and funding, can clear specific categories of cases efficiently. District Courts cleared 2.1 crore cases in 2025-26 vs 1.8 crore new filings – net pendency reduction for the first time, partly attributable to eCourts infrastructure. But technology cannot fix:





judge vacancies (5,500+ vacant positions in district judiciary out of 25,000 sanctioned – 22% vacancy); litigant behaviour (adjournments are as often requested by lawyers and parties as caused by administrative delays); procedural law complexity (Code of Civil Procedure allows unlimited interlocutory appeals – a structural invitation to delay that only legislative reform can address); and infrastructure (many lower courts still lack functional courtrooms, toilets, and basic facilities – technology cannot run on a dysfunctional physical foundation). The appropriate framing: technology is a force multiplier for a properly functioning judiciary, and can partially compensate for resource constraints. But India's 5 crore case backlog reflects decades of under-investment in judicial capacity (judges per million population: India has 21, USA has 107, UK has 50), excessive litigation by the government itself (Government of India is party in 40%+ of all pending cases – the largest litigant in India), and procedural design that rewards delay. Technology makes the existing system faster; only structural reform – more judges, legal aid, mediation, lok adalats, legislative simplification of procedural law, and government litigation policy reform – can prevent the backlog from regenerating at the same rate it is cleared.

PRELIMS ANSWERS & EXPLANATIONS

Q1. Answer: (b) Only three

Explanation: Statement 4 is WRONG – CBG (Compressed Biogas) is chemically equivalent to CNG (both are primarily methane, compressed to 200+ bar); no vehicle modification is needed; CBG can be used in any existing CNG vehicle, CNG pump, or gas pipeline – this is the 'drop-in' advantage that makes CBG commercially viable. Statements 1 (full form correct), 2 (15 MMT by 2030), and 3 (digestate/bio-slurry contains NPK – correct) are all accurate.

Q2. Answer: (b)

Explanation: The Cross-border E-Commerce Export Framework is specifically designed for MSMEs, artisans, and small producers who sell individual items internationally through platforms like Amazon, Etsy, eBay, Alibaba – the framework creates the ECEE (E-Commerce Export Entity) category, simplifies individual parcel customs, and provides faster IGST refunds for this class of small exporters. NOT for large container-shipping exporters (who already have FTP frameworks). NOT for importers. NOT for foreign companies.

Q3. Answer: (b)

Explanation: Agni-4 is a two-stage solid-fuel IRBM (Intermediate-Range Ballistic Missile) with a range of approximately 4,000 km. NOT a cruise missile (cruise missiles fly at constant altitude using air-breathing engines; ballistic missiles follow a parabolic trajectory). NOT submarine-launched (Agni-4 is surface/road-mobile TEL launched; K-4 is India's SLBM). NOT hypersonic glide vehicle (HGV travels at Mach 5+ in the atmosphere; ballistic





missiles achieve high speeds in space but re-enter; Agni-4 has a Manoeuvrable Re-entry Vehicle but is not classified as hypersonic).

Q4. Answer: (c) Tawang

Explanation: Glaw Lake is in Tawang district of Arunachal Pradesh – the district that shares a sensitive border with China (1962 war's key theatre, birthplace of the 6th Dalai Lama). Tawang is also strategically significant as the focus of China's territorial claims on Arunachal Pradesh. The Ramsar designation is thus both an ecological and a soft sovereignty assertion. NOT Papum Pare (Itanagar), NOT Lower Subansiri, NOT West Kameng.

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

Explanation: Statement 4 is WRONG – Chandipura Virus (CHPV) is NOT transmissible from pigs to humans. CHPV infects humans through sandfly bites; it is not a zoonotic disease linked to pigs (that is African Swine Fever – which affects pigs but NOT humans; confusing the two is a trap in this week's PIB which covers both CHPV and ASF). CHPV belongs to Rhabdoviridae (Statement 1 correct), transmitted by Phlebotomus sandflies predominantly affecting under-15s (Statement 2 correct), with CFR 55-75% (Statement 3 correct).

Q6. Answer: (c) Machilipatnam

Explanation: Pingali Venkayya was born in Bhatlapenumarru, Krishna district, near Machilipatnam (Masulipatnam) in present-day Andhra Pradesh. Machilipatnam is also the city after which INS Machilipatnam (7th Mahe-class ASW SWC, Week 9) is named – a remarkable coincidence of the same PIB week. NOT Vijayawada (where he presented his flag design to Gandhi in 1921, but he was not born there). NOT Visakhapatnam. NOT Nellore.

Q7. Answer: (b) Only three

Explanation: Statement 4 is WRONG – USBRL does NOT use maglev technology. It is a conventional railway line (steel wheel on steel rail) – just built through extraordinarily difficult Himalayan terrain. Maglev (magnetic levitation) is used in Japan's Shinkansen Maglev (603 km/h record) and China's Shanghai Maglev; India has no operational maglev line. Statements 1 (Chenab Bridge, 359 m height), 2 (38 tunnels, 119 km underground), and 3 (T-49 tunnel, longest in India) are all correct.

Q8. Answer: (a) 1, 2 and 4 only

Explanation: Statement 3 is WRONG – PFBR does NOT use thorium as its primary fuel. PFBR uses plutonium (from Stage 1 PHWR spent fuel) as primary fuel and uranium-238 as the 'blanket' that breeds more plutonium. Thorium is used in Stage 3 (AHWR – Advanced Heavy Water Reactor), NOT Stage 2 (FBR/PFBR). This is the most commonly confused point in India's 3-stage nuclear programme. Statements 1 (Stage 2 gateway), 2 (operated by BHAVINI), and 4 (6th country to operate FBR) are correct.

Q9. Answer: (b)



Explanation: IndiaAI Mission was launched in March 2024 with Rs 10,372 crore – a distinct number from the other schemes listed as distractors. Rs 6,000 crore = National Quantum Mission. Rs 19,744 crore = National Green Hydrogen Mission (Week 9). Rs 7,000 crore = eCourts Phase III (this week's Digital Judiciary Backgrounder). Matching the correct scheme to its outlay is a classic Prelims trap – memorise: IndiaAI = Rs 10,372 crore.

Q10. Answer: (c)

Explanation: National Handloom Day is observed on August 7 to commemorate the launch of the Swadeshi Movement on August 7, 1905, in Calcutta (in protest against the Partition of Bengal by Lord Curzon). The Swadeshi Movement explicitly promoted Indian handloom as a form of resistance to British manufactured goods – connecting handloom to national independence. August 7, 1905 is a specific, testable date. NOT Gandhi's birthday (October 2). NOT any Five Year Plan or textile policy.





WEEK 2 - AUGUST 2026

INDIA CROSSES 300 GW NON-FOSSIL FUEL POWER CAPACITY

Ministry: Ministry of New and Renewable Energy

PIB Date: 9th August 2026

Easy Explanation

On 9th August 2026, India achieved a milestone that its own government had set as an ambitious target just four years ago: 300 GW of non-fossil fuel installed power capacity. This means that 300,000 megawatts of India's electricity generation now comes from sources that do not burn coal, oil, or gas – solar panels, wind turbines, hydroelectric dams, nuclear reactors, biomass plants, and small hydro. To put this in perspective: India's total installed power capacity is approximately 1,000 GW, so non-fossil sources now account for nearly 30% of installed capacity. The journey from 100 GW (2021) to 200 GW (2023) to 300 GW (2026) took progressively less time, reflecting the exponential nature of renewable energy deployment once the ecosystem matures. Solar alone contributed over 100 GW of this growth, driven by Ultra Mega Solar Parks, PLI for modules, and the PM Surya Ghar rooftop programme. The 300 GW milestone is significant for three reasons: it is directly linked to India's NDC commitment under the Paris Agreement (to achieve 50% of cumulative electric power installed capacity from non-fossil fuel sources by 2030, updated from 40%); it demonstrates that India is tracking ahead of its own targets; and it establishes India as the world's third-largest renewable energy capacity holder after China and the USA. The next milestone is 500 GW of non-fossil capacity by 2030 – requiring another 200 GW in four years, a pace India must sustain and accelerate.

Key Terms:

Term	Definition
300 GW Non-Fossil Milestone	India's installed non-fossil fuel power capacity (solar, wind, hydro, nuclear, biomass) crosses 300 GW on 9th August 2026; ~30% of India's total ~1,000 GW installed capacity; 3rd largest globally
NDC (Nationally Determined Contribution)	India's climate commitment under the Paris Agreement; updated 2022: 50% of cumulative electric power installed capacity from non-fossil sources by 2030; 300 GW milestone ahead of this pace
Installed Capacity vs Generation	Installed capacity = maximum power a plant CAN produce; actual generation differs due to capacity factor; solar has ~20-25%



| Click to Connect Now.



	capacity factor, thermal ~60-70%; 300 GW non-fossil ≠ 300 GW constant clean power
Solar's contribution	100+ GW of the 300 GW growth came from solar; India crossed 100 GW solar in June 2026 (Week 10); Ultra Mega Solar Parks, PLI for modules, PM Surya Ghar drove this; Bhadla (2,245 MW), Pavagada (2,050 MW) flagship parks
500 GW by 2030 target	India's next NDC milestone; requires 200 GW additional non-fossil capacity in 4 years; pace must accelerate beyond current ~40-50 GW/year additions; offshore wind, co-located storage, floating solar are new vectors
ISA (International Solar Alliance)	India-France founded multilateral; 120+ member countries; promotes solar energy globally; India's domestic 300 GW milestone strengthens ISA's credibility as India leads by example
Capacity Factor	Ratio of actual energy produced to maximum possible; wind: 25-35%; solar: 20-25%; thermal: 60-70%; nuclear: 80-90%; low capacity factor means renewable INSTALLED capacity must be much higher than peak demand to ensure reliability

Important Points for UPSC:

- The 300 GW figure is installed CAPACITY – not generation. India's actual electricity generation mix is still dominated by coal (~70% of units generated). The NDC commitment is on installed capacity (50% non-fossil), not generation share – this distinction is a classic UPSC trap
- India's three-phase renewable journey: 2014 – 35 GW total renewable capacity → 2022 – 100 GW solar alone → 2026 – 300 GW total non-fossil; the acceleration is driven by falling solar costs, PLI for manufacturing, and grid integration improvements
- Paris Agreement Article 4 linkage: NDCs are voluntary, self-determined; India's 2022 updated NDC raised ambition from 40% to 50% non-fossil installed capacity by 2030; 300 GW demonstrates India tracking ahead of its own updated target
- Renewable Energy Certificates (RECs): Market mechanism where renewable generators sell certificates to obligated entities (DISCOMs, open access consumers) who must meet Renewable Purchase Obligations (RPO); 300 GW milestone means more RECs in market, cheaper compliance for obligated entities
- Storage integration (Week 10 connection): The 300 GW milestone without adequate storage means intermittency challenges; co-located storage mandate (>100 MW projects) from Week 10's Solar Backgrounder is directly addressing this – 300 GW is the achievement, storage is the next challenge





- MNRE vs MoP distinction: Ministry of New and Renewable Energy (MNRE) handles solar, wind, small hydro, biomass policy; Ministry of Power (MoP) handles thermal, large hydro, grid management; the 300 GW announcement is MNRE's – nuclear is under DAE separately

ASIATIC LION 523 → 891 IN A DECADE + GAJ GAURAV AWARDS 2026 — INDIA'S CONSERVATION DOUBLE

Ministry: Ministry of Environment, Forest and Climate Change

PIB Date: 10th/13th August 2026

Easy Explanation

Two conservation milestones converged this week. The first: official data confirmed that India's Asiatic Lion population has risen from 523 (2015 census) to 891 (2025 census) – a 70% increase in a decade, making it one of the most successful large predator recoveries in Asia. The second: National Celebrations of World Elephant Day 2026 were held at Visakhapatnam, where the Gaj Gaurav Awards 2026 were conferred for exemplary contributions to elephant conservation and management across India. Together, they paint a picture of India's wildlife conservation programme delivering results at scale. The Asiatic Lion story is extraordinary by global standards. The species was nearly extinct by the early 20th century – only 20 individuals survived in Gir Forest, Gujarat in 1900. Today 891 roam Gir's forests and surrounding areas. The recovery is attributed to dedicated protection by the Gujarat Forest Department, community involvement of the Maldhari pastoral community (who share the forest with lions), and legal backing under the Wildlife Protection Act 1972 and the Gir National Park and Wildlife Sanctuary's protected area status. Importantly, the 891 figure marks the first time the population has crossed 800, a threshold conservationists consider critical for long-term genetic viability. The World Elephant Day celebrations at Visakhapatnam – chosen as India's elephant country links the eastern coast forests of Andhra Pradesh to Odisha's elephant corridors – saw the launch of elephant conservation metrics and the Gaj Gaurav Awards recognising forest officers, researchers, and local communities for elephant-human conflict mitigation, corridor protection, and anti-poaching work.

Key Terms:

Term	Definition
Asiatic Lion (<i>Panthera leo persica</i>)	Subspecies of lion found only in Gir Forest, Gujarat; Schedule I, WPA 1972; 523 (2015) → 891 (2025); only 20 survived in 1900; IUCN: Endangered; distinct from African lion in smaller size, belly fold, ear tuft
Gir National Park and Wildlife Sanctuary	Junagadh district, Gujarat; 1,412 sq km total area; NP core (258 sq km) + Sanctuary buffer; only home of Asiatic Lion in wild; established 1965; Project Lion launched 2020



| Click to Connect Now.



Project Lion (2020)	Centrally-sponsored scheme; habitat development, prey base enhancement, disease management, human-lion conflict mitigation, research; analogous to Project Tiger (1973) and Project Elephant (1992)
Maldhari Community	Pastoral nomadic community living in Gir Forest; coexist with lions; their livestock occasionally taken by lions but community largely tolerant; central to conservation success; model of community-based conservation
World Elephant Day	12th August (internationally observed); PM Modi highlighted India's elephant conservation; Gaj Gaurav Awards at Visakhapatnam; India has 60%+ of Asian elephant population
Gaj Gaurav Awards 2026	Conferred at Visakhapatnam on World Elephant Day 2026; recognises forest officers, researchers, communities for elephant conservation; human-elephant conflict mitigation, corridor protection, anti-poaching
Project Elephant (1992)	India's elephant conservation programme; centrally sponsored; elephant corridors, anti-poaching, census, human-elephant conflict mitigation; 30 elephant reserves; India has ~30,000 Asian elephants

Important Points for UPSC:

- 523 → 891 in one decade: 70% population increase; by comparison, tiger population grew from 1,706 (2010) to 3,682 (2022) – 115% in 12 years; India now leads global conservation of two flagship big cats and one great ape (Hoolock Gibbon) simultaneously
- IUCN Red List status: Asiatic Lion = Endangered (population too small, single location = extinction risk); African Lion = Vulnerable; Indian conservation success has not changed IUCN status because 891 in ONE location is still precarious – dispersal to a second site (Barda Wildlife Sanctuary, Gujarat) is under consideration
- Schedule I protection: WPA 1972; absolute prohibition on hunting; minimum 6 years imprisonment; Gir = only Schedule I species that has a single-location wild population in India; if a disease outbreak hit Gir, the entire wild population could be wiped out – single-site risk is the core conservation concern
- Project comparison for UPSC: Project Tiger (1973, 53 reserves) → Project Elephant (1992, 30 reserves) → Project Lion (2020, Gir-centric) → Project Dolphin (2020, Gangetic + Irrawaddy) → Project Cheetah (2022, reintroduction from Namibia/South Africa) – India's flagship conservation timeline
- World Elephant Day + Gaj Gaurav: India has 60%+ of world's Asian elephant population (~30,000); elephant corridors (101 identified) are under pressure from railways, highways, and human settlement; Gaj





Gaurav Awards specifically target human-elephant conflict mitigation – a growing crisis in Assam, Odisha, West Bengal, Karnataka

- Dispersal debate: Supreme Court has asked if a second site (Barda Wildlife Sanctuary, 192 sq km, Porbandar, Gujarat) can host Asiatic Lions; Gujarat government has resisted; lions dispersing outside Gir on their own – lions sighted in Amreli, Bhavnagar, Gir-Somnath districts – natural range expansion is occurring regardless

JAL JEEVAN MISSION – 7 YEARS, RURAL TAP WATER COVERAGE 16.7% TO OVER 82%

Ministry: Ministry of Jal Shakti / Department of Drinking Water and Sanitation

PIB Date: 14th August 2026

Easy Explanation

On the eve of India's 80th Independence Day, the Ministry of Jal Shakti released one of the most striking governance statistics of the decade: rural drinking water tap coverage has surged from 16.7% (when Jal Jeevan Mission was launched, August 2019) to over 82% (August 2026) – seven years of work that connected approximately 15 crore additional rural households to piped tap water. To understand the scale: India has approximately 18-19 crore rural households. Going from 16.7% (about 3 crore households with taps) to 82% (about 15 crore with taps) means 12 crore households received a functional tap water connection in seven years – roughly 17 lakh new connections every month, every month, for seven years. JJM's approach distinguished it from earlier rural water schemes: instead of just building infrastructure, JJM mandated a 'Har Ghar Jal' (tap water to every household) target with a quality standard (55 litres per capita per day of potable water), a community ownership model (Village Water and Sanitation Committees manage the infrastructure), and a demand-driven approach (communities contribute 5-10% of infrastructure cost, creating ownership). The 82% figure also masks important nuances: 'coverage' means a functional tap, but quality, pressure, and reliability of supply vary significantly across states. Rajasthan, Uttar Pradesh, and Bihar are among the states with lower completion rates; Kerala, Goa, and Telangana have achieved near-100% coverage.

Key Terms:

Term	Definition
Jal Jeevan Mission (JJM)	Launched 15th August 2019; 'Har Ghar Jal' – tap water to every rural household; target: 19.2 crore rural households; 55 LPCD quality standard; 16.7% (2019) → 82%+ (2026); ₹3.60 lakh crore total outlay





16.7% → 82% coverage	16.7% in August 2019 ≈ 3.23 crore households with tap connections; 82% in August 2026 ≈ 15.74 crore households; 12.5 crore new connections in 7 years; ~ 17 lakh connections/month sustained
55 LPCD standard	55 Litres Per Capita Per Day; WHO recommends 50-100 LPCD for basic needs; JJM's 55 LPCD is a potable water quality standard, not just quantity; water must be tested at source and delivery point
VWSC (Village Water and Sanitation Committee)	Community institution managing JJM infrastructure at village level; maintenance, billing, quality testing responsibility; 5-10% community contribution ensures ownership; Pani Samiti in some states
Sujal Gaon	75% of rural habitations covered with Sujal Gaon IDs under JJM; a 'Sujal Gaon' is a village that has achieved 100% tap water coverage with tested quality; digital certification; 13th August announcement
JJM 2.0	Next phase; focus on the remaining 18% uncovered + improving quality and sustainability for the 82% covered; target 2028; operational maintenance, water quality testing, and groundwater recharge emphasis
Groundwater dependency	70%+ of JJM connections depend on groundwater (bore wells, tube wells); groundwater depletion in overexploited blocks (Punjab, Haryana, Gujarat, Rajasthan) threatens long-term sustainability of tap connections; JJM 2.0 addresses this

Important Points for UPSC:

- JJM vs earlier schemes: National Rural Drinking Water Programme (NRDWP, 2009-2019) achieved only 17% coverage in a decade; JJM achieved 65+ percentage points in 7 years – the difference is scale of funding (₹3.60 lakh crore vs ₹23,000 crore), political priority, and community-ownership model
- Independence Day timing: Released 14th August (Independence Day eve) – classic government practice of releasing flagship programme milestones on Independence Day; PM likely to mention in ID address on 15th August
- Gendered impact: Rural women and girls walk average 6 km/day to fetch water in waterless villages; JJM's tap connection = 6 km/day reclaimed for education, economic activity, safety; one of the most powerful gender-impact statistics in India's social policy
- Quality vs coverage distinction: PIB reports 82% 'coverage' – but a 2023 NITI Aayog study found 30-40% of JJM connections have intermittent supply (seasonal, or less than daily); JJM 2.0's focus on 'functionality' rather than just 'coverage' addresses this gap directly





- State variation: Kerala (99%), Goa (100%), Telangana (98%) completed early; Uttar Pradesh (~75%), Rajasthan (~70%), Bihar (~65%) still completing; the 82% national average hides large state-level variation important for UPSC state-wise questions
- Water quality testing: JJM mandates water testing at 5 levels – source, treatment unit, storage, distribution, and household; 2,000+ water testing laboratories empanelled; 30 crore+ tests conducted – the quality monitoring infrastructure is as significant as the pipes

NATIONAL GREEN HYDROGEN MISSION – ADVANCING INTO PETROLEUM AND REFINING SECTOR

Ministry: Ministry of New and Renewable Energy

PIB Date: 11th August 2026

Easy Explanation

The National Green Hydrogen Mission (NGHM), launched in January 2023 with an outlay of ₹19,744 crore, has a specific challenge built into its design: green hydrogen production is becoming cheaper and more scalable, but who actually uses it? Hydrogen has always been used in industry – but as 'grey hydrogen' (made from natural gas, emitting CO₂) or 'brown hydrogen' (made from coal, emitting even more CO₂). The petroleum refining and petrochemical sector is one of India's largest hydrogen consumers: refineries use hydrogen to remove sulphur from crude oil (hydrodesulphurisation), to upgrade heavier crude fractions, and to produce ammonia for fertilisers. India's 23 oil refineries consume approximately 5-6 million metric tonnes of grey hydrogen annually. This week's PIB update confirmed that NGHM is now specifically advancing green hydrogen adoption in the petroleum and refining sector – the first concrete sectoral deployment of green hydrogen in a 'hard-to-abate' industrial context. IOC (Indian Oil Corporation), BPCL, and HPCL are each piloting green hydrogen blending in their refinery operations, with the government providing viability gap funding to bridge the cost differential between green hydrogen (currently ~₹350/kg) and grey hydrogen (~₹100/kg). This is strategically significant: petroleum refining is both India's largest single-sector hydrogen consumer and one of its largest CO₂-emitting industries. Converting refinery hydrogen to green hydrogen is simultaneously a decarbonisation and a domestic fossil fuel import reduction measure.

Key Terms:

Term	Definition
National Green Hydrogen Mission (NGHM)	January 2023; ₹19,744 crore outlay; target: 5 MMT green hydrogen production by 2030; ₹17,490 crore for SIGHT (Strategic Interventions for Green Hydrogen Transition); electrolyser PLI + green hydrogen production incentives



| Click to Connect Now.



Green Hydrogen	Hydrogen produced by electrolysis of water using renewable energy; zero direct CO ₂ emissions; currently costs ₹300-400/kg; target ₹150-200/kg by 2030; energy carrier and industrial feedstock
Grey Hydrogen	Hydrogen from steam methane reforming of natural gas; 9-12 tonnes CO ₂ per tonne H ₂ ; currently cheapest (~₹100/kg); dominates current industrial use including all Indian refineries
Hard-to-abate sectors	Industries where decarbonisation is technically difficult: steel, cement, fertilisers, shipping, aviation, petroleum refining; green hydrogen is the primary decarbonisation pathway for these sectors
Hydrodesulphurisation (HDS)	Refinery process using hydrogen to remove sulphur from crude oil fractions; mandatory for producing BS-VI compliant fuels; major hydrogen consumer; greening HDS = greening India's road fuel quality upgrade
SIGHT (Strategic Interventions for Green Hydrogen Transition)	NGHM's flagship incentive scheme; financial incentives for electrolyser manufacturing (₹4,440 crore) and green hydrogen production (₹13,050 crore); competitive bidding; reduces green H ₂ cost toward parity with grey
Electrolyser	Device that uses electricity to split water into hydrogen and oxygen; Alkaline and PEM (Proton Exchange Membrane) are main types; India targeting 5 GW/year electrolyser manufacturing by 2030; currently imports most from Europe/China

Important Points for UPSC:

- The cost gap problem: Green H₂ at ₹350/kg vs Grey H₂ at ₹100/kg – a 3.5x premium; NGHM's viability gap funding (VGF) covers part of this; the mission's production incentive (per kg of green H₂ produced) makes the economics workable for refineries willing to pilot
- 5 MMT by 2030 context: India currently produces near-zero green hydrogen; 5 MMT target requires massive electrolyser deployment; each tonne of green H₂ requires 9-10 litres of water and ~50 MWh of renewable electricity – green H₂ at scale requires both water security and renewable capacity (hence the 300 GW + NGHM connection)
- Fertiliser link: Ammonia (for urea) is produced from hydrogen + nitrogen; all Indian ammonia plants use grey hydrogen; NGHM's fertiliser sector green hydrogen pilots are happening alongside petroleum sector – greening both simultaneously is India's NH₃ (ammonia) decarbonisation strategy





- Shipping fuel: Green hydrogen → green ammonia → ship fuel (zero-carbon shipping fuel); Paradip, Mundra, and JNPT ports are designated Green Hydrogen Hubs under NGHM; India positioning itself as green ammonia exporter to EU (which needs it for shipping decarbonisation)
- SIGHT incentive structure: Two components – (1) Electrolyser manufacturing PLI: ₹4,440 crore, incentivises domestic electrolyser production; (2) Green H2 production incentive: ₹13,050 crore, pays per kg of green H2 produced for 3 years; combined approach addresses both supply (electrolyser) and demand (production) sides
- India as green H2 exporter: NGHM's export vision – India could export green ammonia to Japan, South Korea, EU by 2030; Gulf of Kutch and Tamil Nadu coast have ideal solar + wind combination for low-cost renewable electricity → low-cost green H2 → competitive green ammonia exports

BHASHINI + NITI AAYOG – MULTILINGUAL AI FOR INCLUSIVE GOVERNANCE

Ministry: Ministry of Electronics & IT / NITI Aayog

PIB Date: 12th August 2026

Easy Explanation

India is constitutionally a multilingual democracy – 22 scheduled languages, hundreds of dialects, and a massive population that is more comfortable in their mother tongue than in English or even Hindi. Yet most of India's digital governance infrastructure – from UMANG to DigiLocker to CoWIN – was built primarily in English, with Hindi as a secondary option. A first-generation farmer in Mithila who speaks Maithili, or a fisherwoman in coastal Andhra who speaks Telugu, or a tea garden worker in Assam who speaks Bodo – they could not access digital public services in their language. BHASHINI (Bhasha Interface for India), launched in 2022 under MeitY, is India's national language translation platform: an AI-powered system that provides translation, transcription, and text-to-speech in all 22 scheduled Indian languages plus English. This week, the Digital India BHASHINI Division (DIBD) and NITI Aayog signed a Statement of Intent to systematically embed BHASHINI's multilingual AI capabilities into India's governance infrastructure – making government services accessible in every citizen's mother tongue. The practical applications: a rural beneficiary can speak in Bhojpuri to file a CPGRAMS grievance (BHASHINI transcribes and translates); a tribal MNREGA worker can receive job card information in Gondi; a fisherman can access weather forecasts in Malayalam through a voice interface. The NITI Aayog collaboration specifically targets the 112 Aspirational Districts – areas with the highest linguistic diversity and the lowest digital literacy – as the first deployment zone.

Key Terms:

Term	Definition
BHASHINI	Bhasha Interface for India; MeitY; AI-powered translation, transcription, text-to-speech in 22 scheduled languages + English;



| Click to Connect Now.



	open-source models; developer API for integration into government and private apps; launched 2022
22 Scheduled Languages	8th Schedule of the Constitution; currently 22 languages including Hindi, Bengali, Telugu, Marathi, Tamil, Urdu, Gujarati, Kannada, Malayalam, Odia, Punjabi, Assamese, Maithili, Santali, Kashmiri, Nepali, Sindhi, Konkani, Manipuri, Bodo, Dogri, Sanskrit
DIBD (Digital India BHASHINI Division)	MeitY's dedicated unit for BHASHINI; develops language AI models; manages the open-source BHASHINI platform; signs integration MoUs with government departments and private sector
Statement of Intent (Sol)	A non-binding agreement to collaborate toward a common goal; precursor to a formal MoU; DIBD-NITI Aayog Sol commits to embedding BHASHINI in governance systems across Aspirational Districts
112 Aspirational Districts	NITI Aayog's programme for 112 backward districts across 28 states; monitored on 49 indicators; high linguistic diversity and low digital literacy make them the ideal first deployment for BHASHINI governance integration
Language AI models	BHASHINI uses open-source AI models trained on Indian language corpora; ASR (Automatic Speech Recognition), MT (Machine Translation), TTS (Text-to-Speech); models shared with developers through API – any government or private app can integrate BHASHINI
UMANG + DigiLocker integration	MeitY also announced expanded citizen-centric digital public service delivery through UMANG and DigiLocker this week – BHASHINI's multilingual layer sits on top of these platforms, making them accessible in all 22 languages

Important Points for UPSC:

- Constitutional basis: Article 343 (Official language of Union = Hindi + English); Article 351 (Hindi development); Articles 344 & 351 (Official Language Commission); 8th Schedule (22 scheduled languages); BHASHINI operationalises the 8th Schedule by making AI work in all 22 languages – not just Hindi
- Digital divide dimension: India's 90 crore internet users include 60+ crore who primarily access internet in Indian languages; English-only interfaces exclude this majority; BHASHINI is not just inclusion – it is the condition for India's digital economy to reach its full potential





- AI model sharing: BHASHINI's open-source approach means private sector (Ola, Swiggy, banks, EdTech) can also integrate these language models; this creates a public good that benefits the entire Indian digital ecosystem – not just government services
- Aspirational District targeting: 112 districts chosen because they have the most to gain from multilingual digital governance; health, education, agriculture, MNREGA – all accessed in local languages through BHASHINI integration; NITI Aayog's convergence with BHASHINI creates a powerful last-mile digital inclusion tool
- BharatGen + BHASHINI: Week 10's IndiaAI Mission mentioned BharatGen (India's own LLM in 22 languages); BHASHINI provides the translation infrastructure while BharatGen provides the reasoning intelligence; together they form India's end-to-end sovereign multilingual AI stack
- Global comparisons: EU's Digital Language Equality project; Canada's bilingual digital services mandate; India's BHASHINI is more ambitious – 22 languages vs Canada's 2 – and built on open-source AI rather than proprietary systems; India's approach is a model for other highly multilingual developing nations

DIGILOCKER + AAERI — INDIAN STUDENTS' DOCUMENTS VERIFIED FAST-TRACK FOR AUSTRALIA

Ministry: Ministry of Electronics & IT

PIB Date: 8th August 2026

Easy Explanation

Over 9 lakh Indian students study abroad – Australia hosts approximately 1.2 lakh of them, making it India's second-largest international student destination after Canada. The single biggest administrative pain point for students going to Australia: document verification. Australian universities, the Department of Home Affairs (visa processing), and the Australian Skills Assessment bodies all require verification of Indian academic documents – 10th and 12th marksheets, degree certificates, transcripts, identity documents. The verification process through traditional channels (university registrars, notarisation, embassy attestation) can take 2-6 months and costs ₹10,000-50,000 per application. AAERI (Association of Australian Education Representatives in India) – the body representing over 200 Australian education agents and institution representatives in India – has partnered with DigiLocker to fast-track this process. Under the partnership, Australian universities can now request document verification directly from DigiLocker (which holds government-authenticated copies of 600 crore+ documents for 36 crore+ registered users), receive digitally-signed, tamper-proof copies, and complete verification in hours instead of months. This is DigiLocker's first major international education partnership and marks a significant step in India's Digital Public Infrastructure (DPI) going global – following UPI's international expansion to Singapore, UAE, France, and Bhutan.

Key Terms:



| Click to Connect Now.



Term	Definition
DigiLocker	MeitY's digital document wallet; 36 crore+ registered users; 600 crore+ documents stored; links to Aadhaar; issues digitally-signed documents from government sources (CBSE, universities, RTO, UIDAI); legally equivalent to originals under IT Act 2000
AAERI	Association of Australian Education Representatives in India; represents 200+ Australian education agents and institutions; manages recruitment of Indian students for Australian universities; first international body to partner with DigiLocker for verification
Document verification pain	Traditional academic verification (registrar attestation, notarisation, embassy attestation): 2-6 months, ₹10,000-50,000; DigiLocker + AAERI: hours, minimal cost; reduces document fraud as DigiLocker copies are government-authenticated originals
DPI (Digital Public Infrastructure)	India's stack of foundational digital systems: Aadhaar (identity), UPI (payments), DigiLocker (documents), BHASHINI (language), ONDC (commerce), CoWIN (health); AAERI partnership extends DigiLocker internationally – DPI going global
India-Australia Education Corridor	India-Australia Education Qualification Recognition Mechanism (EQRM); migration pathway for Indian students; Indian universities opening Australian campuses; IIT Madras Perth campus already operational; DigiLocker partnership deepens this corridor
IT Act 2000, Section 35	Legal basis for DigiLocker documents' equivalence to originals; Section 35 of IT Act: electronic records certified by government recognised repositories are admissible as evidence; AAERI partnership relies on this legal framework
9 lakh Indian students abroad	India is the world's 2nd largest source of international students; 9 lakh+ abroad; USA (~3.4 lakh), Canada (~3.5 lakh), Australia (~1.2 lakh), UK (~1.5 lakh) are top destinations; Australia is 3rd-largest destination, 2nd-largest English-speaking destination

Important Points for UPSC:

- DPI internationalisation: UPI went international (Singapore 2021, UAE 2022, France, Bhutan, Nepal); now DigiLocker goes international (Australia 2026); India's DPI stack is becoming a global export – countries and institutions adopting Indian-built infrastructure





- Document fraud prevention: Australia has had significant issues with fraudulent Indian academic certificates submitted by agents; DigiLocker partnership eliminates this – only government-authenticated originals, digitally signed, directly from source; reduces fraud and protects legitimate Indian students from blanket suspicion
- India-Australia Comprehensive Strategic Partnership (2020): Covers defence, trade, education, science; DigiLocker-AAERI partnership is a tangible education pillar deliverable; India-Australia FTA (ECTA, 2022) has a professionals and students mobility chapter that this partnership operationalises
- Reverse flow potential: Australian universities could eventually submit their degree certificates to DigiLocker for Indian employers to verify – the partnership could become bilateral, making Indian hiring of Australian-educated professionals faster too
- CBSE, university links: DigiLocker already has live document issuance links with CBSE, ICSE, 900+ universities, NTA, all state boards; these are the same documents Australian universities want to verify – making the integration technically straightforward
- Comparison with other DPI exports: GIFT City's IFSCA is promoting India's financial infrastructure; IndiaStack.global promotes Aadhaar, UPI, DigiLocker as a package for developing nations; AAERI partnership is the education vertical of this DPI export story

E-SAMUDRA — INDIA'S INTEGRATED DIGITAL PLATFORM FOR MARITIME GOVERNANCE

Ministry: Ministry of Ports, Shipping and Waterways

PIB Date: 8th August 2026

Easy Explanation

India has 12 Major Ports, 200+ non-major ports, 7,517 km of coastline, and handles over 1,400 million tonnes of cargo annually – making maritime infrastructure one of the most complex governance domains in the country. Yet, until recently, this sector operated through a patchwork of legacy systems: port operators used one software, shipping lines another, customs authorities a third, the Directorate General of Shipping a fourth. A vessel calling at Mumbai Port would interact with 15-20 different government agencies, each with their own paper-based or siloed digital system. Cargo dwell times at Indian ports averaged 3-4 days compared to Singapore's 0.8 days – a direct competitive disadvantage that costs Indian exporters billions in demurrage charges annually. E-Samudra – launched this week by the Ministry of Ports, Shipping and Waterways – is India's integrated digital platform for maritime governance. It brings together: vessel tracking (AIS-based real-time position of all vessels in Indian waters), Port Community System (single digital window for all port clearances), seafarer documentation (digitising Continuous Discharge Certificates, endorsements, training certificates), maritime education records, and ship registration. The platform is built on India's DPI principles – open architecture, interoperable with ICEGATE (customs), DGFT (trade), and CoastalSAT (satellite-based vessel monitoring) – so that a shipping line, a port agent, or a customs officer sees a single, consistent view of any vessel's status.



| Click to Connect Now.

**Key Terms:**

Term	Definition
E-Samudra	Ministry of Ports, Shipping and Waterways; integrated digital maritime governance platform; vessel tracking, Port Community System, seafarer records, ship registration – unified single window for maritime sector
12 Major Ports	Under central government (Major Port Authorities Act 2021): Mumbai, JNPT, Mundra, Kandla/Deendayal, Paradip, Visakhapatnam, Chennai, Kamarajar, Cochin, New Mangalore, Mormugao, Kolkata+Haldia; handle 60%+ of India's maritime cargo
Port Community System (PCS)	Single digital window for port clearances – integrating customs, shipping lines, freight forwarders, port operators; India's PCS 1x (predecessor) is being upgraded and integrated into E-Samudra
AIS (Automatic Identification System)	Mandatory ship transponder broadcasting vessel identity, position, speed, course; received by coastal stations and satellites; E-Samudra uses AIS data for real-time vessel tracking in Indian waters
CDC (Continuous Discharge Certificate)	Seafarer's primary identity document; issued by DGS (Directorate General of Shipping); records all voyages; E-Samudra digitises CDC issuance and verification – reduces fraud, speeds up port state control inspections
Sagarmala Programme	MoPSW's port-led development initiative; port modernisation, coastal connectivity, port-linked industrialisation, coastal community development; E-Samudra is Sagarmala's digital governance layer
Cargo dwell time	Time cargo spends at port from vessel arrival to exit; India average 3-4 days; Singapore 0.8 days; Rotterdam 1.2 days; every day of excess dwell time costs Indian exporters ~\$25-30/tonne in demurrage; E-Samudra targets 50% reduction in port clearance time

Important Points for UPSC:

- Maritime economy scale: India's maritime sector contributes ~1.6% of GDP; 70% of India's trade by value and 95% by volume moves through ports; even marginal efficiency improvements in port operations translate to billions of dollars in trade competitiveness
- Major Port Authorities Act 2021: Replaced Major Port Trusts Act 1963; gave Major Ports autonomy to set their own tariffs, enter PPP agreements, and manage their own land; E-Samudra operates within this new regulatory framework – more autonomous ports with better digital governance



| Click to Connect Now.



- Seafarer welfare: India has the world's 3rd largest seafarer population (~250,000 active seafarers); their documents (CDC, STCW certificates, CoC – Certificate of Competency) being on E-Samudra means Indian seafarers can be verified digitally by foreign port state control authorities – reduces harassment and delays
- International shipping connection: India hosted the IMO (International Maritime Organization) Council election; has committed to IMO's 2050 net-zero shipping target; E-Samudra's vessel tracking and environmental compliance monitoring is India's contribution to global maritime decarbonisation governance
- Coastal shipping boost: India's 14 National Waterways + coastal shipping are underutilised vs road/rail; E-Samudra's coastal vessel tracking and simplified coastal cargo permits could make coastal shipping 20-30% more efficient – shifting cargo from congested roads to uncongested sea lanes
- Container Manufacturing Assistance Scheme connection (Backgrounder this week): India imports 95%+ of its shipping containers from China; the Container Manufacturing scheme + E-Samudra together = India building domestic container manufacturing capacity AND digitising the ports that will handle those containers

CBDC-BASED DIRECT BENEFIT TRANSFER — FIRST REAL-WORLD DEPLOYMENT IN INDIAN UTs

Ministry: Ministry of Company Affairs / Ministry of Agriculture / RBI

PIB Date: 12th/14th August 2026

Easy Explanation

The Central Bank Digital Currency (CBDC) – India's digital rupee, e₹ – was launched by RBI in pilots in November 2022. Three and a half years later, it is moving from pilot to policy: the Government of India announced and then launched the world's first CBDC-based Direct Benefit Transfer (DBT) in the Union Territories of Chandigarh and Dadra & Nagar Haveli. On 14th August, Agriculture Minister Shivraj Singh Chouhan launched the CBDC-based DBT in Chandigarh specifically for the Public Distribution System (PDS) – beneficiaries will receive their food subsidy entitlement directly in their CBDC (digital rupee) wallets, which they can use at PDS shops without needing cash, bank accounts, or internet connectivity (CBDC wallets can work offline for small amounts). This is genuinely historic: it is the first time any country in the world has used a Central Bank Digital Currency to deliver a government welfare programme to retail beneficiaries at scale. The choice of UTs (rather than a full state) is deliberate – UTs are directly administered by the central government, making them ideal testing grounds for new policy innovations. Chandigarh and D&NH have small, manageable populations (about 12 lakh and 3.5 lakh respectively) but robust digital infrastructure. The CBDC-DBT model addresses one of the biggest remaining leakages in India's welfare system: beneficiaries who receive cash DBT sometimes spend it on non-intended purposes; CBDC-DBT can be 'programmable' – the digital rupee credited for PDS can be restricted to PDS shops only, ensuring the subsidy reaches its intended purpose.

Key Terms:



| Click to Connect Now.



Term	Definition
CBDC (Central Bank Digital Currency)	Digital form of a country's fiat currency issued by the central bank; India's e₹ (digital rupee) launched by RBI November 2022; two forms: wholesale (e₹-W, for interbank) and retail (e₹-R, for public); legal tender like physical rupee
e₹ (Digital Rupee)	RBI's CBDC; pilot launched November 2022 in 4 cities, expanded to 13 cities; Chandigarh/D&NH CBDC-DBT is first policy (not pilot) deployment; uses DLT (Distributed Ledger Technology) or centralised ledger depending on RBI's architecture choice
Programmable money	Key feature of CBDC: conditions can be coded into the digital currency; e.g., PDS-CBDC can only be spent at PDS fair price shops; subsidy for seed purchase can only be spent at certified seed dealers; prevents leakage and ensures targeted use
DBT (Direct Benefit Transfer)	Government transfers money directly to beneficiary's bank account; launched 2013; ₹38 lakh crore+ transferred since launch; Jan Dhan-Aadhaar-Mobile (JAM trinity) backbone; CBDC-DBT replaces bank account with digital wallet
PDS (Public Distribution System)	Subsidised food grain distribution through ~5.5 lakh Fair Price Shops; NFSA 2013 entitlement: 5 kg grain/person/month at ₹1-3/kg; beneficiary count: 81.35 crore (2/3 of India); Chandigarh pilot makes PDS subsidy programmable and traceable
Offline CBDC functionality	RBI designing e₹ to work without internet for small transactions; crucial for rural and semi-urban areas; NFC (Near Field Communication) or similar technology; Chandigarh/D&NH pilot testing offline CBDC at PDS shops
Financial inclusion angle	JAM trinity works for those with bank accounts; CBDC wallet needs only a mobile phone (even feature phone), not a bank account; potentially extends DBT reach to the 15-20 crore who remain unbanked despite Jan Dhan

Important Points for UPSC:

- World's first CBDC-DBT: No other country has deployed a CBDC for government welfare transfer to retail beneficiaries at this scale; China's digital yuan (e-CNY) pilots have included government salary payments but not a welfare programme of PDS's scale and complexity





- RBI's CBDC architecture: RBI has chosen a two-tier model – RBI issues e₹ to banks → banks distribute to customers; CBDC-DBT for PDS bypasses this: government directly credits e₹ to beneficiary wallets – this is a policy innovation in CBDC distribution that requires RBI's approval and architecture support
- JAM Trinity evolution: Jan Dhan (bank account) + Aadhaar (identity) + Mobile (connectivity) = JAM; CBDC-DBT adds a fourth layer: Programmable Money; JAM + Programmable CBDC = JAMC (Jan Dhan-Aadhaar-Mobile-CBDC) – the next evolution of India's welfare delivery architecture
- Privacy concern: CBDC is programmable but also traceable; every e₹ transaction is recorded; this raises privacy questions that physical cash does not – the RBI has committed to 'privacy by design' for e₹, but the tension between programmability (anti-leakage) and privacy (civil liberties) is real and unresolved
- UT as testing ground: Chandigarh and D&NH chosen because: directly central-government administered, small populations, good digital infrastructure; success here → state-level rollout → national DBT system transformation; classic India policy innovation pathway
- Fertiliser subsidy potential: If PDS-CBDC works, next application is fertiliser subsidy (₹2 lakh crore annually); programmable fertiliser CBDC that can only be spent at certified dealers by registered farmers – eliminating diversion of subsidised fertiliser to industry

INDIA-SACU PREFERENTIAL TRADE AGREEMENT – TERMS OF REFERENCE SIGNED

Ministry: Ministry of Commerce & Industry

PIB Date: 12th August 2026

Easy Explanation

The Southern African Customs Union (SACU) – comprising Botswana, Eswatini, Lesotho, Namibia, and South Africa – is the world's oldest customs union (established 1910) and Africa's most economically integrated bloc. India and SACU signed Terms of Reference (ToR) on 12th August 2026 for negotiations toward a Preferential Trade Agreement (PTA) – the first formal trade negotiation framework India has ever signed with an African customs union. This is qualitatively different from India's bilateral trade agreements with individual African countries (India-Rwanda JTC in Week 10; India-Namibia JTC this week). A PTA with SACU means that tariff reductions negotiated with one SACU member automatically apply to all five – India would gain preferential access to South Africa's market (Africa's most industrialised economy, \$400 billion GDP), Namibia's uranium and green hydrogen, Botswana's diamonds, Lesotho's textiles, and Eswatini's agricultural produce under a single framework. The strategic calculus: India-Africa trade stands at \$100 billion; India-SACU trade specifically is about \$15-20 billion; a PTA could double this within a decade. More importantly, SACU sits at the heart of AfCFTA (African Continental Free Trade Area) – a PTA with SACU effectively creates a gateway to the entire 54-nation African market. India's critical minerals strategy (Week 8-9 context) makes the SACU geography particularly valuable: South Africa has the world's largest platinum group metals reserves, Namibia has uranium and rare earths, Botswana has diamonds and copper.



| Click to Connect Now.

**Key Terms:**

Term	Definition
SACU (Southern African Customs Union)	World's oldest customs union (1910); members: Botswana, Eswatini, Lesotho, Namibia, South Africa; common external tariff; revenue sharing formula; headquartered in Windhoek, Namibia; SA is dominant economy (85%+ of SACU GDP)
Terms of Reference (ToR)	The agreed framework document defining the scope, objectives, process, and timeline of trade negotiations; signed ToR = formal launch of PTA negotiations; not a PTA itself but the starting gun for negotiations
PTA (Preferential Trade Agreement)	Trade agreement where parties offer each other reduced (not zero) tariffs on a specified list of goods; less comprehensive than FTA (which aims for near-zero tariffs on most goods); India's PTAs include India-MERCOSUR, India-Chile
AfCFTA (African Continental Free Trade Area)	54-nation African market; launched 2021; aims to eliminate 90%+ intra-African tariffs; \$3.4 trillion combined GDP; SACU members are all AfCFTA members – India-SACU PTA creates AfCFTA gateway for Indian goods
Critical minerals geography	South Africa: world's largest PGMs (platinum group metals – platinum, palladium, rhodium), chromium, vanadium; Namibia: uranium, rare earths, green hydrogen potential; Botswana: diamonds, copper; all critical for India's EV, clean energy, defence supply chains
India-Africa trade (\$100 billion)	India is Africa's 3rd largest trading partner; India exports: pharmaceuticals, machinery, textiles; Africa exports: crude oil, gold, coal, minerals; SACU specifically exports minerals, agriculture, manufactured goods to India
South Africa's role	Dominant SACU economy (85%+ of bloc's GDP); India's largest African trade partner; also a BRICS member (India and SA together in BRICS since 2010); India-South Africa bilateral includes defence, nuclear energy, renewable energy cooperation

Important Points for UPSC:



- World's oldest customs union: SACU predates the EU's customs union (1968) by 58 years; established by the 1910 Customs Union Agreement between British colonies; remarkable durability across independence and apartheid era; current 2002 SACU Agreement governs revenue sharing
- PTA vs FTA distinction for UPSC: PTA = preferential (reduced) tariffs on select goods; FTA = free (zero/near-zero) tariffs on most goods; CEPA = Comprehensive Economic Partnership Agreement (tariffs + services + investment); India-SACU ToR specifies PTA – less ambitious than FTA but achievable faster
- BRICS bridge: India and South Africa are both BRICS members; this BRICS relationship provides a diplomatic channel and existing economic relationship that makes India-SACU PTA negotiations easier than a completely new relationship; BRICS also provides a multilateral forum to resolve disputes
- Diamond trade significance: Botswana produces 24% of world's rough diamonds by value; India cuts and polishes 90% of world's diamonds (Surat is the global diamond cutting capital); India already imports rough diamonds from Botswana through De Beers; a PTA would formalise and deepen this relationship with reduced tariffs
- Platinum for green economy: South Africa has 91% of world's platinum group metal reserves; platinum is essential for hydrogen fuel cells and electrolyzers; India's green hydrogen ambitions (NGHM, this week's article) make South African PGM access a strategic necessity, not just a trade opportunity
- Lesotho textile link: Lesotho is sub-Saharan Africa's largest apparel exporter (to USA under AGOA); India-Lesotho textile trade is small but has potential; India's textile raw materials (yarn, fabric) + Lesotho's apparel manufacturing = a value chain opportunity within SACU PTA

INDIA-NAMIBIA JOINT TRADE COMMITTEE — 4TH SESSION, CRITICAL MINERALS AND GREEN HYDROGEN

Ministry: Ministry of Commerce & Industry

PIB Date: 11th August 2026

Easy Explanation

Namibia is a country India cannot afford to ignore. It is sparsely populated (2.5 million people, one of the lowest population densities in the world) but extraordinarily resource-rich: the world's 4th largest uranium producer, significant rare earth deposits, a 1,500 km Atlantic coastline with exceptional offshore wind and solar potential that is already being developed into one of the world's largest green hydrogen production hubs, and the Tsodilo Hills – a UNESCO World Heritage Site containing some of the world's richest rock art. India and Namibia held their 4th Joint Trade Committee (JTC) session in New Delhi on 11th August, building on an increasingly strategic bilateral relationship. The context: India's critical minerals strategy requires upstream access to uranium for its nuclear programme, rare earths for electronics and defence, and green ammonia for its decarbonisation pathway. Namibia offers all three. India is also Namibia's largest pharmaceutical supplier – generic medicines at affordable prices support Namibia's public health system. The JTC this week focused on: uranium supply agreements (Namibia's Rossing and Husab mines are among the world's largest); rare earth processing collaboration (India's



| Click to Connect Now.



IREL – Indian Rare Earths Limited – has expressed interest in Namibia's rare earth deposits); green hydrogen project collaboration (Namibia's Hyphen Hydrogen project, the world's largest green hydrogen project currently under development, could export green ammonia to India); and pharmaceutical market access.

Key Terms:

Term	Definition
Namibia's uranium	4th largest uranium producer globally; Rossing mine (Rio Tinto) and Husab mine (CGNPC/China) are largest; uranium is critical for India's nuclear programme (Stage 1 PHWRs need uranium fuel); India's civil nuclear agreements cover uranium import – Namibia is a diversification source
Hyphen Hydrogen Project	World's largest green hydrogen project under development in Namibia's Tsau //Khaeb National Park; \$10 billion; 5 GW electrolyser capacity by 2030; will produce 300,000 tonnes green H ₂ /year + green ammonia; EU, Japan, South Korea are primary buyers; India could be added
Namibia's rare earths	Significant deposits in Namibia; not yet major producer; IREL (Indian Rare Earths Ltd) exploring partnership for mining and processing; connects to India's Critical Minerals policy (Week 8-9)
IREL (Indian Rare Earths Limited)	Department of Atomic Energy PSU; produces rare earth compounds from coastal monazite sands; exploring international rare earth partnerships; Namibia partnership would diversify India's rare earth supply chain beyond domestic production
India-Namibia pharma	India is Namibia's largest pharma supplier; generic medicines cover 80%+ of Namibia's public health system needs; Jan Aushadhi equivalent for Africa; pharma is India's soft power instrument across Africa – access = goodwill
JTC mechanism	Joint Trade Committee: bilateral mechanism for structured trade dialogue, removing market access barriers, facilitating investment; 4th session suggests deepening relationship; 5th session likely to produce concrete MoUs on uranium, rare earths, green H ₂
Africa Critical Minerals strategy	India's approach: bilateral JTCs + PTA negotiations (SACU) + Lines of Credit for African infrastructure → build goodwill → secure critical mineral supply contracts; Namibia is a key node in this strategy

Important Points for UPSC:



| Click to Connect Now.



- Uranium supply chain: India's 3-stage nuclear programme (Week 10) requires uranium for Stage 1 PHWRs; India has limited domestic uranium (Jharkhand, Andhra Pradesh deposits); civil nuclear agreements with USA, Russia, France, Australia, Canada, Kazakhstan; Namibia adds Atlantic coast diversification – geopolitical supply chain resilience
- China's presence: Husab uranium mine (Namibia) is Chinese-owned (CGNPC); China has invested heavily in Namibia's mining sector; India-Namibia JTC is partly a response to China's growing African mineral footprint – India is competing for access to the same resources
- Green hydrogen import vision: India's NGHM targets domestic production, but import of green ammonia from Namibia (where solar + wind + land = cheapest green H2 in the world at projected \$1/kg by 2035) may be economically rational; JTC is laying the diplomatic groundwork for this import relationship
- Tsodilo Hills UNESCO site: Namibia's rock art heritage; 4,500 rock paintings; UNESCO World Heritage since 2001; India's CCRT (cultural exchange) and ICCR (cultural diplomacy) have programmes with Namibia – cultural diplomacy runs alongside the minerals diplomacy
- Namibia's economic transformation: Namibia discovered oil offshore (Orange Basin) in 2022 – significant reserves; potential oil exporter by 2030; India-Namibia energy relationship could expand from uranium to conventional oil + green hydrogen – a full energy partnership spectrum
- SACU connection: Namibia is a SACU member (this week's India-SACU PTA ToR); India-Namibia JTC is both a bilateral mechanism and a deepening of the multilateral SACU relationship – bilateral relationship strengthens India's negotiating position in SACU PTA negotiations

MITHILA MAKHANA — GI-TAGGED, FIRST SEA-ROUTE EXPORT TO AUSTRALIA

Ministry: Ministry of Commerce & Industry / APEDA

PIB Date: 8th August 2026

Easy Explanation

Makhana (fox nuts or lotus seeds, *Euryale ferox*) is one of India's most nutritionally remarkable aquatic crops. Grown in the flooded fields of Bihar's Mithila region – the same cultural heartland that gave India Maithili literature, Madhubani painting, and the Janak dynasty of the Ramayana – Makhana is rich in protein (9.7%), calcium, magnesium, potassium, and phosphorus, low in fat, and naturally gluten-free. It has been cultivated in Bihar for over 2,000 years using a unique and labour-intensive process: the seeds are harvested from lotus ponds, dried, heated in a wok until they pop (like popcorn), and then the outer shell is manually broken to reveal the white puffed kernel. The Mithila Makhana GI tag was granted in 2022, recognising that the specific agro-climatic conditions of Mithila – the waterlogged Mithila plains, the specific variety of *Euryale ferox* grown there, and the traditional processing knowledge of the Mallah community (traditional fishermen who have been Makhana cultivators for generations) – give Mithila Makhana its unique taste and nutritional profile that Makhana from other regions cannot replicate. This week, APEDA (Agricultural and Processed Food Products Export Development Authority) facilitated the first-ever export of GI-tagged Mithila Makhana by sea route from Bihar to Australia.



| Click to Connect Now.



Previously, Makhana exports to Australia went by air (expensive, limiting volume); sea route export opens the door to commercial-scale, cost-competitive Makhana trade with Australia's large Indian diaspora and health food market.

Key Terms:

Term	Definition
Makhana (Euryale ferox)	Fox nuts / lotus seeds; aquatic crop grown in flooded fields; Bihar produces 80%+ of India's Makhana; Mithila region speciality; high protein (9.7%), calcium, magnesium; low fat, gluten-free; ancient crop (2,000+ years of cultivation)
Mithila Makhana GI tag	Granted 2022; recognises Mithila's specific agro-climate, Euryale ferox variety, Mallah community's traditional processing knowledge as the source of Makhana's unique quality; GI protection = only Mithila-origin Makhana can use the tag
APEDA	Agricultural and Processed Food Products Export Development Authority; under MoCI; promotes export of agricultural produce; registers exporters, sets quality standards, facilitates new export routes and markets; Makhana, Basmati rice, Alphonso mango, GI products
Sea route vs air route	Air freight for Makhana to Australia: ~₹300-500/kg; sea freight: ~₹30-50/kg; 10x cost reduction; Makhana shelf life (12-18 months when properly stored) makes sea route viable; opens commercial-scale export vs niche air-freight volumes
Mallah community	Traditional fishermen of Bihar who have been cultivating Makhana for generations; GI recognition includes their traditional knowledge as part of what makes Mithila Makhana unique; GI + sea route export should directly benefit this community economically
Australia Indian diaspora	7.6 lakh Indian-born Australians (ABS 2021 census); growing demand for Indian food products; health food market trend (gluten-free, high-protein snacks) makes Makhana attractive to mainstream Australian consumers beyond diaspora
GI + ECEE synergy	Week 10's Cross-border E-Commerce Framework + Mithila Makhana GI tag = artisans can sell directly online internationally; this week's sea-route export demonstrates the conventional trade complement to the digital trade framework





Important Points for UPSC:

- Bihar's agricultural transformation: Bihar is not just rice — it has Makhana (Mithila), Shahi Litchi (Muzaffarpur, GI tagged), Katarni rice (Bhagalpur), Jardalu mango (Bhagalpur); APEDA is systematically opening export routes for Bihar's GI-tagged products — this sea-route breakthrough is Bihar's agricultural export infrastructure moment
- Euryale ferox specifics: Annual aquatic plant; seeds harvested from pods underwater; Bihar's waterlogged Mithila plains (seasonal flooding) are ideal — the same conditions that challenge conventional agriculture are Makhana's requirement; climate change-resilient crop in low-lying flood-prone areas
- Nutritional market trend: Global 'superfood' market; Makhana fits perfectly — ancient crop, plant-based protein, gluten-free, low glycaemic index, no processing additives; competing with quinoa, chia seeds in health food aisle; sea-route export makes India-origin Makhana price-competitive in Australian market
- GI registry: India's 600+ GI tags (Week 10 context) are economically valuable only when connected to export infrastructure; APEDA's role is exactly this — connecting GI producers to global markets; Mithila Makhana sea route is the template for 100+ other GI agricultural products that currently lack export infrastructure
- PM's IIT Delhi convocation (8th Aug): PM Modi's address at IIT Delhi on same day mentioned India's growing self-reliant medtech ecosystem — Makhana's nutritional properties have attracted AYUSH and medtech interest; functional food potential beyond snack market
- Post-harvest infrastructure: Sea route requires packaging that preserves Makhana for 6-8 week transit; APEDA has worked with Bihar's Makhana producers on modified atmosphere packaging (MAP) — vacuum-sealed or nitrogen-flushed — that maintains quality; this infrastructure investment benefits all Bihar agricultural exporters

MUSTARD HONEY — DERGANG FPO, TRIPURA TO DUBAI: NORTHEAST'S AGRICULTURAL EXPORT MOMENT

Ministry: Ministry of Commerce & Industry / APEDA

PIB Date: 10th August 2026

Easy Explanation

Tripura is one of India's smallest states — 10,486 sq km, landlocked, bordered by Bangladesh on three sides. It is not the first state one thinks of for agricultural exports. Yet this week, APEDA facilitated what the ministry described as the first-ever export of Mustard Honey from Tripura, by the Dergang Farmer Producer Organisation (FPO), to Dubai. This is a story about three intersecting policy priorities materialising simultaneously: the FPO model (government-backed collective farming organisations that give small farmers market access, credit, and economies of scale), the Northeast's agricultural transformation (Act East Policy's economic dimension), and India's Arab Gulf export diversification (beyond the South Asian community market). Mustard Honey is produced when bees



| Click to Connect Now.



pollinate mustard flowers (*Brassica napus/juncea*) – it has a distinctive sharp, pungent flavour, light golden colour, and crystallises quickly (which is actually a quality marker, not a defect). Tripura's mustard cultivation, combined with government-supported beekeeping under the National Beekeeping and Honey Mission (NBHM), has created a surplus of high-quality mustard honey that Dergang FPO is now channelling to export markets. Dubai is a strategic first destination – it is a global re-export hub with 3.5 million Indian diaspora, but also a gateway to Middle East, Central Asia, and European markets. The Mustard Honey export demonstrates that an FPO in one of India's most remote and landlocked states can access global premium markets through coordinated government support.

Key Terms:

Term	Definition
FPO (Farmer Producer Organisation)	Collective legal entity of farmers (company or cooperative); gives small farmers economies of scale, collective bargaining, market access, credit; registered under Companies Act 2013 or Cooperative Act; 10,000 FPOs target under government programme (₹6,865 crore scheme)
Dergang FPO	Tripura-based FPO; mustard honey production and export; facilitated by APEDA; first Northeast FPO to export mustard honey internationally; demonstrates FPO model's export potential beyond domestic markets
National Beekeeping and Honey Mission (NBHM)	2020 launch; ₹500 crore; modernises beekeeping, improves honey quality, connects beekeepers to markets; Tripura beekeeping cluster has benefited; NBHM + FPO model = market-ready honey exports
Mustard Honey specifics	Produced from Brassica mustard flowers; light golden colour, sharp pungent flavour, quick crystallisation (quality indicator, not defect); high in antioxidants; used in Ayurveda and health food market; distinct from wildflower or acacia honey
Dubai as export gateway	UAE is India's 3rd largest export destination (\$35+ billion); 3.5 million Indian diaspora in UAE; Dubai is global re-export hub; Middle East, Central Asia, Europe markets accessible through Dubai – one export to Dubai = access to a vast regional market
Act East Policy dimension	India's strategic policy to integrate Northeast with ASEAN and beyond; economic integration requires Northeast agricultural exports; Tripura's border with Bangladesh makes it a natural transit point; APEDA facilitating Northeast FPO exports is Act East's economic operationalisation



**Landlocked state export challenge**

Tripura is 3-sided by Bangladesh; road exports to mainland India are long; APEDA has worked on air and sea cargo routing via Kolkata and Agartala airport; the Maitri Setu (India-Bangladesh friendship bridge over Feni river) also creates new logistics options

Important Points for UPSC:

- 10,000 FPO scheme: Government target of 10,000 FPOs by 2027-28; ₹6,865 crore; 3-year handholding support; equity grant up to ₹15 lakh/FPO; credit guarantee; Dergang FPO's export success is the evidence base that the 10,000 FPO model can generate international market access, not just domestic market linkages
- Honey market global: Global honey market ~\$9 billion annually; India's honey exports have grown to \$100+ million; major markets are USA, UAE, Saudi Arabia, Germany; India faced EU honey quality rejection (2010s) due to antibiotic contamination – NBHM's quality focus is partly a response to this trade barrier
- Northeast agricultural potential: Meghalaya's organic turmeric and ginger, Manipur's black rice (Chakhao), Tripura's mustard honey, Assam's Mishing community's rice beer (Apong), Nagaland's spicy Raja Mircha chilli – each is a premium niche product; APEDA + FPO model + Act East logistics = export potential being unlocked one product at a time
- Maitri Setu logistics: India-Bangladesh Friendship Bridge (Maitri Setu) over Feni river connects Tripura to Bangladesh's Chittagong Port – giving landlocked Tripura sea access via Bangladesh; Dergang FPO's Dubai export may have routed through Chittagong or Agartala-Kolkata-Dubai air freight
- Beekeeping as pollination service: Every FPO honey producer also provides crop pollination; mustard fields pollinated by bees yield 15-20% higher; beekeeping FPOs serve double duty – honey product export + agricultural productivity improvement on the same farm
- Arab Gulf market: Gulf states' Indian diaspora is largest consumer base for Indian food products; but beyond diaspora, Arab Gulf consumers are increasingly health-conscious; authentic regional Indian honey (Tripura mustard, Uttarakhand forest honey, Sundarbans mangrove honey) finding premium market in Gulf health food segment

SINTERED RARE EARTH PERMANENT MAGNETS — 20 BIDS SIGNAL DOMESTIC MANUFACTURING MOMENTUM

Ministry: Ministry of Heavy Industries

PIB Date: 13th August 2026

Easy Explanation

| Click to Connect Now.



This story begins with a magnet – specifically a type of magnet called a Sintered Rare Earth Permanent Magnet (REPM), and India's near-total dependence on China for them. Rare Earth Permanent Magnets (Neodymium-Iron-Boron or NdFeB magnets, Samarium-Cobalt magnets) are the most powerful magnets known to science. An EV motor the size of a shoebox contains 1-2 kg of NdFeB magnets. Each wind turbine generator contains 600 kg. Each cruise missile guidance system contains precision REPM components. Each MRI machine uses superconducting magnets that rely on rare earth processing. China controls 85%+ of global REPM production – not just mining, but the entire value chain from rare earth ore to finished magnet. India imports 95%+ of its REPM from China. The Ministry of Heavy Industries launched a 'Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets' earlier this year, offering incentives (PLI-style) to domestic manufacturers. This week's announcement: 20 bids have been received from Indian companies and joint ventures – a response scale that surprised even the ministry. The 20 bidders include established magnet importers who want to shift to domestic manufacturing, new entrants backed by Indian conglomerate capital, and potential joint ventures with Japanese and Korean rare earth processing companies (both Japan and South Korea have their own China-REPM dependency problem and see India as a partner for diversification).

Key Terms:

Term	Definition
REPM (Rare Earth Permanent Magnets)	Strongest permanent magnets; NdFeB (Neodymium-Iron-Boron) and SmCo (Samarium-Cobalt); used in EV motors, wind turbines, missile guidance, MRI machines, defence electronics; irreplaceable – no alternative material with comparable magnetic performance
NdFeB (Neodymium-Iron-Boron) magnets	Most common REPM type; neodymium (rare earth) + iron + boron; exceptional magnetic strength at room temperature; 1-2 kg per EV motor; 600 kg per large wind turbine generator; critical material for green economy transition
China's REPM dominance	China mines 60% of global rare earths; processes 85%+ of global rare earth magnets; controls entire value chain – mining, separation, alloying, sintering, magnetisation; strategic leverage used in trade disputes (2010 rare earth export restrictions to Japan)
Sintering process	Manufacturing process: rare earth alloy powder compressed under high pressure, then heated in controlled atmosphere below melting point to bond particles; produces dense, high-performance magnet; requires specialised equipment and controlled environment – capital-intensive
India's REPM imports	India imports 95%+ of REPM from China; ₹2,000-3,000 crore annually; used in: consumer electronics, EV (growing demand), wind





	energy (growing demand), defence (sensitive dependency); replacing imports with domestic production = strategic priority
20 bids significance	20 companies expressing interest shows domestic manufacturing appetite; typical PLI scheme sees 5-10 serious bidders for niche manufacturing; 20 bids suggests India has enough entrepreneurs willing to enter this capital-intensive, technically complex sector
Japan/South Korea JV potential	Both face China-REPM dependency; Japanese companies (TDK, Shin-Etsu, Hitachi Metals) and Korean (Samsung Electro-Mechanics) have REPM technology; India JV = technology transfer + India market access + China supply chain diversification; win-win for both sides

Important Points for UPSC:

- EV demand surge: India targeting 1.5 crore EVs/year by 2030; each EV uses 1-2 kg NdFeB; at 1.5 crore EVs, India needs 15,000-30,000 tonnes of NdFeB magnets annually just for EVs – currently all imported from China; domestic REPM manufacturing is an EV supply chain security imperative
- Defence criticality: REPM are used in: guided missile actuators, radar systems, submarine electric motors, drone motors, night-vision equipment; importing defence-critical magnets from China (with whom India has active border tensions) is an unacceptable strategic vulnerability; domestic REPM = defence indigenisation
- Rare earth supply linkage: REPM manufacturing requires rare earth inputs (neodymium, praseodymium, dysprosium); India has rare earth deposits (monazite sands, Kerala-Tamil Nadu coast; carbonatites in Andhra Pradesh) but has not developed REPM-grade rare earth processing; C-DAC + GSI MoU (Week 10) to map rare earth deposits + REPM scheme = upstream and downstream simultaneously
- Value chain comparison: India mines iron ore but exports iron ore and imports steel; similarly, India has rare earth deposits but imports REPMs; the REPM scheme is an attempt to break this pattern – capture value at the manufacturing stage rather than the mining stage
- PLI-style incentive architecture: Ministry of Heavy Industries has structured the REPM scheme similar to PLI – production-linked incentive, quality thresholds, domestic value addition requirement; 20 bids processed under competitive selection; selected companies get financial support over 5 years
- Global supply chain diversification: USA, EU, Japan, South Korea, Australia – all trying to reduce China REPM dependency; India + Japan rare earth processing partnership (discussed in India-Japan Foreign Ministers meeting 2025) + REPM scheme = India positioning as an alternative REPM manufacturing hub

NBA DISBURSES ₹15.52 CRORE ABS PROCEEDS FROM MUSTARD GENETIC RESOURCES

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



| Click to Connect Now.



PIB Date: 13th August 2026

Easy Explanation

India's mustard (*Brassica juncea*) is not just a cooking oil crop – it is a genetic library. Over centuries, Indian farmers in Rajasthan, Haryana, Uttar Pradesh, and Madhya Pradesh have selected, saved, and cultivated thousands of traditional mustard varieties, each adapted to specific local conditions: some drought-tolerant, some high-yielding in black soil, some with specific fatty acid profiles for different culinary traditions. When global seed companies and research institutions access India's mustard genetic resources – to develop new commercial varieties that will be grown across the world – they are benefiting from centuries of Indian farmers' knowledge and stewardship. The Nagoya Protocol to the Convention on Biological Diversity (CBD) established the legal framework for 'Access and Benefit Sharing' (ABS): countries that provide genetic resources are entitled to a fair share of the benefits (monetary and non-monetary) that flow from the commercial use of those resources. India's Biological Diversity Act 2002 and the National Biodiversity Authority (NBA) implement this framework. This week, the NBA released ₹15.52 crore in ABS proceeds specifically from mustard genetic resources – the largest single ABS payment from a crop genetic resource that India has processed. The payment flows from companies (seed companies, pharmaceutical companies) that have accessed Indian mustard genetic material and commercialised products from it. The proceeds are distributed to 33 States/UTs and National Institutes proportionally to the genetic resource contributions from their territories.

Key Terms:

Term	Definition
NBA (National Biodiversity Authority)	Statutory body under Biological Diversity Act 2002; Chennai; regulates access to India's biological resources; implements ABS (Access and Benefit Sharing) mechanism; manages National Biodiversity Fund; grants approvals for research and commercial access
ABS (Access and Benefit Sharing)	Nagoya Protocol framework; countries providing genetic resources get fair share of benefits from their commercial use; benefits: monetary (royalties, fees) and non-monetary (technology transfer, capacity building, joint research); India's NBA implements ABS domestically
Nagoya Protocol	2010 supplementary agreement to CBD; entered into force 2014; 138 parties including India; establishes Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) for genetic resource access; India's BDA 2002 is the domestic implementation
Biological Diversity Act 2002	India's primary biodiversity law; NBA at national level; State Biodiversity Boards at state level; Biodiversity Management



| Click to Connect Now.



	Committees at local level; prohibits access to biological resources without NBA approval; ABS mechanism under Section 21
Mustard genetic resources	India is a primary centre of diversity for Brassica juncea (Indian mustard); thousands of traditional varieties; genetic traits include: disease resistance, oil quality, climate adaptation; accessed by global seed companies for commercial variety development
₹15.52 crore ABS payment	Largest single ABS payment from crop genetic resources in India; distributed to 33 states/UTs and National Institutes (ICAR, agricultural universities) proportionally; benefits eventually reach farmers' communities through State Biodiversity Boards
Prior Informed Consent (PIC)	Requirement under Nagoya Protocol; any entity accessing a country's genetic resources must first obtain consent from the provider country; India's NBA grants PIC; without PIC, access is biopiracy; ABS payment is the benefit that accompanies PIC

Important Points for UPSC:

- Biopiracy prevention: Famous cases – turmeric patent (USA, 1995, successfully challenged by India), neem patent (EU, challenged), Basmati rice (RiceTec, USA, partially challenged); ABS mechanism is designed to prevent biopiracy by requiring benefit sharing BEFORE access, not litigating after commercial use
- CBD + Nagoya Protocol hierarchy: Convention on Biological Diversity (CBD, 1992, Rio Earth Summit) → Cartagena Protocol (2003, biosafety for GMOs) → Nagoya Protocol (2010, ABS); India is party to all three; the ₹15.52 crore payment is Nagoya Protocol working as designed
- Traditional knowledge (TK) link: India's mustard varieties were developed by generations of farmers – their TK is embodied in these genetic resources; ABS mechanism is designed to compensate this TK; TKDL (Traditional Knowledge Digital Library, Week 7) prevents patent misuse; ABS provides positive benefit for legitimate use
- Distribution to states: ₹15.52 crore distributed to 33 states/UTs proportionally; Rajasthan, Haryana, UP, MP (major mustard states) get larger shares; State Biodiversity Boards further distribute to local communities and Biodiversity Management Committees; farmer communities should ultimately benefit
- ICAR's role: Indian Council of Agricultural Research holds vast germplasm collections (National Bureau of Plant Genetic Resources – NBPGR, New Delhi); NBPGR's mustard germplasm is a key source for ABS; ICAR-NBPGR shares in the ₹15.52 crore as a National Institute recipient
- Global seed industry context: Major beneficiaries of Indian mustard genetics include: Bayer (Monsanto), Syngenta, Corteva, Limagrain, BASF; these companies develop commercial mustard hybrids incorporating Indian genetic traits; their commercial success (worth billions) was partly built on India's genetic resources – ABS ensures India gets its share





BRICS CULTURE MINISTERS' XI MEETING — BHOPAL DECLARATION ADOPTED

Ministry: Ministry of Culture

PIB Date: 8th August 2026

Easy Explanation

The 11th edition of the BRICS Culture Ministers' Meeting concluded in Bhopal on 8th August, with the adoption of the Bhopal Declaration — a joint statement by culture ministers of all BRICS nations (Brazil, Russia, India, China, South Africa + new BRICS members: Egypt, Ethiopia, Iran, Saudi Arabia, UAE, and Argentina) committing to deepened cultural cooperation, heritage preservation, and the use of digital technology to democratise access to cultural assets. Bhopal was chosen as the host city deliberately — it is home to the Bharat Bhavan (multi-arts complex), the Tribal Museum (one of India's finest tribally curated museums), the UNESCO-listed Bhimbetka rock shelters (oldest human cultural evidence in India), and a significant Islamic architectural heritage (the Taj-ul-Masajid, one of Asia's largest mosques). India's BRICS Chairship 2026 theme is 'BRICS for Global South' — and the Bhopal Declaration reflects this by emphasising the cultural heritage of the Global South as a counter-narrative to the Western-centric global cultural discourse. Key Bhopal Declaration commitments: mutual recognition of cultural heritage sites for BRICS tourism circuits; BRICS digital cultural exchange platform (sharing digitised heritage assets); cooperation on repatriation of looted cultural artefacts; and a joint BRICS Performing Arts Festival rotating across member countries. For India, this BRICS cultural platform also serves a specific purpose: the Bhopal meeting placed India's tribal heritage (Bhimbetka, Gond art, Warli art, Bastar crafts) at the centre of BRICS cultural discourse — establishing India as a custodian of the oldest continuous human cultural tradition on earth.

Key Terms:

Term	Definition
BRICS 2026 Members	Original: Brazil, Russia, India, China, South Africa; New (joined January 2024): Egypt, Ethiopia, Iran, Saudi Arabia, UAE, Argentina; 11-member BRICS now represents 45%+ of world population, 35%+ of global GDP (PPP); India's 2026 Chairship covers expanded BRICS
Bhopal Declaration	Joint statement of 11th BRICS Culture Ministers' Meeting; commitments: mutual heritage recognition, BRICS digital cultural platform, artefact repatriation cooperation, BRICS Performing Arts Festival; India chairs BRICS 2026, hosts multiple ministerial meetings
Bhimbetka Rock Shelters	UNESCO World Heritage Site, Raisen district, MP; 30,000+ year old rock art; earliest evidence of human life in India; Mesolithic-period cave paintings; one of India's most significant cultural heritage sites; chosen for Bhopal meeting's symbolism



| Click to Connect Now.



Cultural repatriation	Bhopal Declaration includes cooperation on repatriation of looted cultural artefacts; India has been seeking return of items from UK (Koh-i-noor, etc.), USA, Germany, Australia; BRICS platform gives multilateral momentum to bilateral repatriation requests
BRICS Cultural Chairship deliverables	India's 2026 BRICS Chairship culture deliverables: this XI Culture Ministers' Meeting (Bhopal Declaration) + BRICS Waves Bazaar (creative economy, Mumbai, Week 10) + BRICS Film Festival; 3 distinct cultural platforms in one chairship year
India-China in BRICS culture	Despite border tensions, India and China cooperate in BRICS cultural platforms; BRICS cultural diplomacy provides a de-escalation channel; Bhopal Declaration requires consensus among all members including China – India and China agree on cultural cooperation even when security ties are strained
Digital cultural exchange	Bhopal Declaration's digital platform: member countries share digitised heritage (manuscripts, artworks, performances) on a common platform; India's National Mission for Manuscripts (45,000+ digitised manuscripts) and IGNCA's digital archive are India's contribution

Important Points for UPSC:

- BRICS expansion significance: Original BRICS (B-R-I-C-S) → expanded BRICS-11 (plus Egypt, Ethiopia, Iran, Saudi Arabia, UAE, Argentina); India's 2026 Chairship is the first under expanded BRICS; cultural cooperation among 11 heterogeneous nations (different religions, languages, political systems) demonstrates BRICS's resilience as a forum
- Bhopal's heritage: Bhopal chosen for Bhimbetka (30,000+ year old rock art), Sanchi Stupa (UNESCO, 3rd century BCE), Bhojpur's Shiva temple, and the Taj-ul-Masajid – a range of Hindu, Buddhist, and Islamic heritage in one city; hosts BRICS's most diverse cultural delegations symbolically
- Artefact repatriation as diplomacy: India's demand for colonial-era looted artefacts (Koh-i-noor diamond from UK, Sultanganj Buddha from UK, Amaravati marbles from UK) aligns with Global South's broader anti-colonial narrative; BRICS platform gives India multilateral backing for these bilateral demands
- Tribal heritage positioning: Bhimbetka's Mesolithic rock art, Gond and Warli tribal art being presented at BRICS = India claiming the world's oldest unbroken cultural tradition; also signals India's PM Modi's tribal welfare priority (PM-JANMAN, Adi Karmayogi) has a cultural diplomacy dimension
- China-India cultural diplomacy channel: India-China people-to-people exchanges largely suspended since Galwan (2020); BRICS cultural platforms are one of few remaining institutional channels; Bhopal Declaration's joint commitment to cultural exchange could be a quiet diplomatic opening





- Netflix + BRICS culture synergy: Week 10's Netflix-Tourism-Culture MoU for documentaries on Indian heritage + Bhopal Declaration's BRICS digital cultural platform = India's heritage being simultaneously globalised through streaming and institutionalised through multilateral frameworks

CCI HOSTS BRICS HEADS OF COMPETITION AUTHORITIES — INDIA'S ANTITRUST LEADERSHIP

Ministry: Competition Commission of India

PIB Date: 9th August 2026

Easy Explanation

Competition law — the rules that prevent monopolies, cartels, predatory pricing, and anti-competitive mergers — is rarely glamorous enough to make headlines. But it is the hidden architecture of a market economy: without it, dominant companies can crush competitors, fix prices, and stifle innovation. The Competition Commission of India (CCI) hosted the BRICS Heads of Competition Authorities meeting on 9th August as part of India's BRICS Chairship 2026. This brought together the heads of competition regulators from all 11 BRICS nations — the USA's DOJ and FTC equivalents of Brazil (CADE), Russia (FAS), China (SAMR), South Africa (CCSA), and the new BRICS members. The meeting's agenda: digital markets competition (Big Tech platforms — Google, Meta, Amazon — operating across BRICS jurisdictions with different national competition laws); algorithmic collusion (how pricing algorithms can facilitate cartel-like behaviour without explicit communication); and merger review coordination (large cross-border mergers requiring simultaneous clearance from multiple BRICS regulators). For India, hosting this meeting is significant: CCI is one of the most active competition regulators in Asia, having fined Google ₹1,337 crore (2022) for Android market abuse, fined Amazon and Flipkart (2023) for deep discounting practices, and approved conditional merger clearances for several major Indian deals. CCI's BRICS leadership role positions India as a rule-setter for the emerging multipolar trade and technology order.

Key Terms:

Term	Definition
CCI (Competition Commission of India)	Statutory body under Competition Act 2002; prevents anti-competitive agreements (cartels), abuse of dominant position, anti-competitive mergers; 7-member commission; New Delhi; quasi-judicial powers; fining authority; 2022 Google fine ₹1,337 crore its largest
Competition Act 2002	India's primary competition law; replaced MRTP Act 1969; Section 3 (anti-competitive agreements), Section 4 (abuse of dominance), Section 5-6 (merger regulation); CCI enforces; NCLAT hears appeals; Supreme Court final arbiter



| Click to Connect Now.



BRICS Competition Authorities	Brazil: CADE (Conselho Administrativo de Defesa Econômica); Russia: FAS; China: SAMR (State Administration for Market Regulation); South Africa: CCSA; India: CCI; new members have varying competition law maturity; India among the most sophisticated
Digital markets competition	Big Tech platforms (Google, Meta, Amazon, Apple) dominate digital markets in BRICS countries; 'self-preferencing' (Google favoring its own shopping results), 'killer acquisitions' (buying startups to prevent competition), data monopolies – all BRICS regulators grappling with these
Algorithmic collusion	Pricing algorithms (used by airlines, hotels, e-commerce) can independently arrive at similar prices without explicit cartel communication; BRICS competition authorities discussing how to detect and regulate algorithmic coordination – emerging competition law frontier
Merger review coordination	Large cross-border mergers (e.g., a pharmaceutical company merger involving BRICS-market assets) requires simultaneous approval from multiple BRICS regulators; uncoordinated review creates uncertainty; Bhopal meeting discussed coordination protocols
CCI's recent actions	Google: ₹1,337 crore fine (2022, Android Play Store abuse); Amazon/Flipkart: market study, show cause notice; MakeMyTrip-Goibibo: conditional approval; Jio: regulatory scrutiny; CCI is among Asia's most active competition regulators – credentials to lead BRICS forum

Important Points for UPSC:

- Competition Act 2002 vs MRTP Act 1969: MRTP (Monopolies and Restrictive Trade Practices Act) focused on preventing monopoly size; Competition Act focuses on anti-competitive behaviour regardless of size; a large company is not illegal under CA 2002 – abusing dominance is; paradigm shift from size-based to behaviour-based regulation
- Digital markets gap: Competition Act 2002 was drafted before smartphones, app stores, and platform economies; CCI's market studies on e-commerce (2020) and telecom (2021) identified gaps; Competition Amendment Act 2023 introduced 'deal value threshold' for mergers (₹2,000 crore deal value triggers review even if target's assets are small) – plugging the 'killer acquisition' gap
- India's data protection + competition intersection: India's Digital Personal Data Protection Act 2023 + CCI's digital market regulation + MeitY's intermediary guidelines = India's emerging Big Tech regulatory trinity; CCI's BRICS leadership positions India's approach as a model for Global South digital regulation





- China-India competition law overlap: China's SAMR and India's CCI both regulating the same Big Tech platforms (Google, Meta are in India; their Chinese equivalents Baidu, Alibaba are in China); BRICS coordination allows sharing of regulatory intelligence and coordinated enforcement against global platforms operating across jurisdictions
- COMPAT (Competition Appellate Tribunal) → NCLAT: CCI's original appellate body COMPAT was merged into NCLAT (National Company Law Appellate Tribunal) by the Companies Amendment Act 2017; NCLAT hears both competition and insolvency appeals – this integration is a UPSC-notable institutional change
- Cartel cases: CCI has penalised several cartels – cement industry (₹6,700 crore, 2012), airlines (baggage fee cartel), tyre manufacturers, sugar mills; BRICS coordination on cartel detection means India can share intelligence with South Africa (where mining company cartels are common) and Russia (where energy sector cartels operate)

UPI — ZERO CHARGES FOR USERS FORMALLY CONFIRMED BY GOVERNMENT

Ministry: Ministry of Finance

PIB Date: 8th August 2026

Easy Explanation

A persistent piece of misinformation has circulated in Indian digital finance circles for the past three years: that the government is planning to impose transaction charges on UPI payments. This week, the Ministry of Finance formally and unequivocally put this rumour to rest: No Charges for UPI Users – confirmed policy. To understand why this confirmation matters, one needs to understand the UPI economics. UPI (Unified Payments Interface), built by NPCI (National Payments Corporation of India) and launched in 2016, has grown to handle 1,000 crore+ transactions per month worth ₹20 lakh crore+. It is free for users (both sender and receiver) – no transaction fee, no MDR (Merchant Discount Rate) charged to merchants for UPI transactions. This zero-MDR policy was mandated by the government in January 2020 for RuPay debit cards and UPI transactions – overriding market incentives that would naturally lead payment networks to charge for services. The economic logic: UPI's massive adoption (India is now the world's #1 real-time payments market, handling more real-time payments than the USA, Europe, China, and UK combined) is the direct result of the zero-MDR model. If charges were imposed, adoption would slow – particularly among small merchants and low-income users for whom even ₹0.50 per transaction adds up. The government compensates banks and payment service providers through the 'Incentive Scheme for Promotion of Low-Value BHIM-UPI Transactions' – ₹1,500 crore budgeted for FY 2026-27 – to partially offset the MDR that the zero-MDR policy foregoes.

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



UPI (Unified Payments Interface)	NPCI-built real-time payment system; launched April 2016; links bank accounts through Virtual Payment Addresses (VPAs); 1,000+ crore transactions/month; ₹20 lakh crore+/month value; zero MDR for merchants; 300+ banks participating
MDR (Merchant Discount Rate)	Fee charged to merchant for accepting digital payments; credit cards: 1.5-3%; debit cards: 0.4-0.9%; UPI: ZERO (since January 2020 government mandate); MDR covers: acquiring bank cost, issuing bank revenue, payment network fee
Zero-MDR mandate	January 2020 Cabinet decision: no MDR on UPI and RuPay debit card transactions; overrides market economics; payment ecosystem incurs cost but government compensates partially through incentive scheme; key reason for UPI's mass merchant adoption
NPCI (National Payments Corporation of India)	Section 8 (not-for-profit) company; owned by consortium of banks; builds and operates India's payment infrastructure: UPI, RuPay, IMPS, NACH, AePS, NETC; NPCI International handles UPI's global expansion
UPI Incentive Scheme	Government scheme to compensate banks for zero-MDR loss; FY 2026-27 budget: ₹1,500 crore; targeted at transactions below ₹2,000 (low-value transactions are the most economically marginal for banks but most important for financial inclusion)
India's real-time payment dominance	India handles 48%+ of the world's real-time payment transactions (ACI Worldwide 2025); more than USA + Europe + China + UK combined; UPI's zero-MDR model is the primary reason for this volume dominance – free payments drive adoption
G20 cross-border payment link	India's G20 Presidency (2023) set cross-border payment interoperability as priority; UPI is now live in: Singapore (PayNow), UAE (UPI QR), France (Lyf Pay), Nepal, Bhutan, Malaysia, Mauritius, Sri Lanka; zero-charge policy extends to these international corridors

Important Points for UPSC:

- Zero-MDR is a policy choice, not a technical necessity: Credit card networks (Visa, Mastercard) charge MDR; UPI's zero-MDR is a deliberate government intervention to prioritise financial inclusion over payment network revenue; the ₹1,500 crore annual subsidy is the fiscal cost of this choice
- PhonePe-Google Pay duopoly: Despite NPCI setting 30% market share cap for third-party UPI apps (to prevent monopoly), PhonePe and Google Pay together hold 80%+ of UPI transaction market; NPCI has





been slow to enforce the 30% cap; market concentration in a 'free' ecosystem has competition law implications

- CBDC-UPI comparison (Week 10 context): CBDC (₹) is RBI-issued digital money; UPI is a payment interface for existing bank money; they are complementary – CBDC could eventually be transferred using UPI infrastructure; CBDC-DBT (this week's article) uses a different wallet system, but integration with UPI is the long-term architecture
- UPI Lite: For transactions below ₹500, UPI Lite allows offline, near-instant payments without PIN (using pre-loaded balance in a wallet on the device); reduces network load; extends UPI to low-connectivity areas; government is expanding UPI Lite to feature phones (UPI 123PAY – for 123-series feature phone calls)
- Global expansion implications: If India starts charging MDR for UPI, international corridors (Singapore, UAE, France) would need fee restructuring; maintaining zero-MDR is also a condition for several bilateral payment interoperability agreements; global UPI architecture depends on the domestic zero-MDR commitment
- Digital payment ecosystem hierarchy: RTGS (real-time gross settlement, large value) → NEFT (batch, any value) → IMPS (instant, ₹5 lakh limit) → UPI (instant, ₹10 lakh limit, zero MDR) → UPI Lite (offline, ₹500 limit) → CBDC (programmable, policy deployment); understanding this hierarchy is essential for UPSC payment system questions

E20 PETROL — OIL COMPANIES TEST AND VALIDATE: NO CHLORIDE CONTAMINATION

Ministry: Ministry of Petroleum & Natural Gas

PIB Date: 8th August 2026

Easy Explanation

A disinformation campaign targeting India's ethanol blending programme surfaced earlier this year: claims circulating on social media and some trade publications alleged that E20 petrol (petrol blended with 20% ethanol) contained 500 ppm (parts per million) of chloride and moisture – allegedly causing vehicle engine corrosion, fuel injector damage, and warranty void claims by automobile manufacturers. The claims were specific enough to sound credible and alarmed both consumers and automobile OEMs. Oil Marketing Companies (IOC, BPCL, HPCL) responded this week with comprehensive test results: independent laboratory testing of E20 petrol samples across multiple refineries and fuel stations found chloride content well within BIS (Bureau of Indian Standards) specifications for petrol (maximum 1 ppm for chloride in petrol) and moisture levels within acceptable limits. The 500 ppm chloride claim is 500x the actual tested level – a manufactured number. India's ethanol blending programme reached E20 (20% ethanol blend) nationally in April 2025 – ahead of the original 2025 target. The programme has blended 760 crore litres of ethanol in 2025-26, reducing crude oil imports by approximately ₹45,000 crore. The disinformation campaign appears timed to undermine E20 rollout at its critical scaling phase. The OMC test results, published under Ministry of Petroleum guidance, are a formal rebuttal in the public record.



| Click to Connect Now.

**Key Terms:**

Term	Definition
E20 (Ethanol 20% blend)	Petrol with 20% anhydrous ethanol; India achieved E20 nationally by April 2025; reduces crude oil import dependency; uses ethanol from sugarcane, grains, cellulosic sources; requires minor vehicle adaptation for optimal performance but current-gen vehicles compatible
Ethanol Blending Programme (EBP)	Government of India initiative since 2003; progressive targets: E5 (2012) → E10 (2017) → E20 (2025) → E30+ target (2030); administered by MoPNG with sugarcane and grain supply from MoAFW; OMCs procure ethanol from distilleries
Chloride in petrol (BIS spec)	BIS IS 2796 (petrol standard): chloride limit = 1 ppm maximum; OMC tests found E20 samples well below 1 ppm; the 500 ppm claim = 500x the specification limit; physically impossible under normal ethanol production and blending processes
Anhydrous ethanol	Ethanol with <0.5% water content; required for petrol blending (water causes phase separation – ethanol and petrol separate if moisture is present); Indian distilleries producing anhydrous ethanol through molecular sieve dehydration; meeting moisture specification
760 crore litres blended (2025-26)	India blended 760 crore litres of ethanol in petrol in 2025-26; equivalent to approximately 55 crore litres of crude oil import substitution; saves ₹45,000 crore in crude oil import bill; also reduces CO ₂ emissions (ethanol combustion is carbon-neutral if from biomass)
Flex Fuel Vehicles (FFV)	Vehicles designed to run on any ethanol-petrol blend from E0 to E85; India mandating FFV technology in new vehicles from 2025 for certain categories; Brazil has 90%+ FFV market – India's model; FFVs eliminate compatibility concerns at E30+ blend levels
Sugarcane linkage	70-80% of India's ethanol comes from sugarcane molasses and juice; remaining from grains (rice, maize) under grain-ethanol policy (2022); connecting sugarcane farmers directly to petrol supply chain; farmer income diversification beyond sugar price cycles

Important Points for UPSC:

| Click to Connect Now.



- Ethanol blending reduces import bill: India imports 85%+ of crude oil requirements (~232 million tonnes/year); at E20 blend nationally, India displaces ~8-9% of petrol demand with domestic ethanol; ₹45,000 crore crude import bill reduction in 2025-26 = significant current account benefit
- Carbon accounting: Ethanol from sugarcane is carbon-neutral over its lifecycle (sugarcane absorbs CO₂ during growth; combustion returns the same CO₂ – net zero on biomass carbon); but transportation, distillation energy has a carbon footprint; overall, E20 reduces well-to-wheel CO₂ by 15-20% vs E0
- Vehicle compatibility: E10 is compatible with all modern vehicles; E20 is compatible with vehicles manufactured after 2010 with minor tuning adjustments; E30+ requires FFV technology; the OMC test rebuttal is important because automobile OEMs were considering invoking warranty clauses if contamination claims were true
- BIS IS 2796: Bureau of Indian Standards specification for motor spirit (petrol); specifies density, distillation, flash point, octane number, sulphur content, gum content, chloride, oxidation stability; E20 specification (IS 17021) was published separately and specifies ethanol content, anhydrous requirement, compatibility parameters
- Disinformation in energy transition: This is not an isolated incident – similar campaigns have targeted: coal plant closures (electricity shortage misinformation), EV batteries (false fire safety claims), solar (land acquisition misinformation); understanding how to evaluate technical energy claims is increasingly important for governance
- Oil company economics: OMCs (IOC, BPCL, HPCL) sell ethanol-blended petrol at the same price as pure petrol; ethanol is cheaper than petrol (current procurement price ~₹65/litre vs petrol equivalent ~₹100/litre); E20 blend is more profitable for OMCs than pure petrol – OMCs have no economic incentive to supply bad-quality E20

AI UNCOVERS HIDDEN CANCER STEM CELLS — PATHWAY TO PRECISION ONCOLOGY

Ministry: Ministry of Science & Technology / CSIR

PIB Date: 12th August 2026

Easy Explanation

One of the most frustrating realities in cancer treatment is recurrence: a patient undergoes surgery, chemotherapy, and radiation – the tumour disappears by all measurable standards – and then, months or years later, the cancer returns, often more aggressively than before. For decades, oncologists suspected that a small population of cells within tumours – called Cancer Stem Cells (CSCs) – were responsible. Unlike the bulk of tumour cells that are killed by chemotherapy, CSCs are thought to be dormant, resistant to treatment, and capable of regenerating the entire tumour from a tiny surviving population. Proving this definitively, and identifying which specific cells are CSCs within the chaos of a heterogeneous tumour, has been extraordinarily difficult – until now. CSIR (Council of Scientific and Industrial Research) scientists this week published findings of a computational AI model that analyses



| Click to Connect Now.



tumour gene expression data (which genes are active in each individual cell within a tumour) and identifies hidden CSC populations with high precision. The model – trained on cancer genomics datasets from multiple cancer types (breast, colorectal, lung, hepatocellular) – can map the 'stemness' of individual cells within a tumour and predict which cell populations are most likely to survive treatment and drive recurrence. The practical implication: before a patient undergoes chemotherapy, their tumour biopsy can be run through this AI model; if high CSC density is detected, treatment can be escalated (additional drugs that specifically target CSCs, higher doses, combination regimens) rather than discovering the recurrence two years later.

Key Terms:

Term	Definition
Cancer Stem Cells (CSCs)	A subset of tumour cells with stem-cell-like properties: self-renewal, differentiation, treatment resistance, dormancy; hypothesised to be the source of tumour recurrence after treatment; also called tumour-initiating cells (TICs)
CSIR (Council of Scientific and Industrial Research)	Autonomous body under DST; 37 national laboratories; India's largest publicly funded R&D organisation; includes IICT, NCL, IGIB, CCMB, CDRI; this AI model from one of CSIR's biomedical labs
Gene expression analysis (scRNA-seq)	Single-cell RNA sequencing; measures which genes are active in each individual cell within a tumour; produces a 'map' of cellular heterogeneity; the AI model analyses this map to identify CSC populations
Tumour heterogeneity	Within one tumour, different cells have different gene expression profiles, drug sensitivities, and proliferative potential; heterogeneity is why 'one-size-fits-all' chemotherapy fails – it kills sensitive cells but leaves resistant CSCs
Stemness score	A quantitative measure of how 'stem-cell-like' a cell is; the AI model assigns each tumour cell a stemness score; cells with high stemness scores = likely CSCs; high-stemness tumours = high recurrence risk
Precision oncology	Tailoring cancer treatment to the specific molecular characteristics of each patient's tumour; CSIR's AI model adds a CSC dimension to precision oncology – treatment decisions based on CSC density and identity, not just standard tumour markers
Recurrence prediction	CSIR model predicts which patients are at high recurrence risk based on CSC density in their pre-treatment biopsy; allows proactive





treatment intensification rather than reactive recurrence management
– shifts oncology from reactive to predictive

Important Points for UPSC:

- Why CSCs are treatment-resistant: CSCs are often in G0 (quiescent/dormant) cell cycle phase – most chemotherapy drugs kill actively dividing cells; CSCs escape by not dividing; they also overexpress drug efflux pumps (ABC transporters) that actively expel chemotherapy drugs from the cell before they can cause damage
- CSIR's cancer AI portfolio: This model adds to CSIR's growing AI-in-health portfolio – CSIR-IGIB developed COVID-19 diagnostic RT-PCR kits (2020), CSIR-CDRI develops new drug molecules, CSIR-IICT develops active pharmaceutical ingredients; AI for cancer diagnosis is the latest chapter
- Four cancer types validated: Breast, colorectal, lung, hepatocellular (liver) – four of India's most prevalent cancers; the model works across cancer types because CSC biology shares common gene regulatory pathways regardless of tissue origin (OCT4, SOX2, NANOG – pluripotency genes – are expressed in CSCs across cancers)
- Clinical trial pathway: This AI model needs clinical validation in a prospective trial before it becomes standard of care; the typical pathway: retrospective validation (completed) → prospective pilot (ongoing) → randomised controlled trial → regulatory approval → clinical adoption; CSIR's publication is the retrospective validation stage
- Connection to India's cancer burden: India sees 14+ lakh new cancer cases annually; breast cancer is India's most common female cancer; liver cancer is rising due to hepatitis B/C and non-alcoholic fatty liver disease; CSIR's model is specifically relevant for India's cancer landscape
- Cervical cancer screening AI (this week, Art 20): Two AI cancer tools in one PIB week – CSIR's CSC model (tumour biology) and Griva Healthcare's cervical cancer screening (early detection) – represent India's AI-in-oncology moment; together they address the full spectrum from screening to treatment personalisation

AI-POWERED CERVICAL CANCER SCREENING – GRIVA HEALTHCARE'S INDIGENOUS TECHNOLOGY

Ministry: Ministry of Science & Technology / TDB-DST

PIB Date: 10th August 2026

Easy Explanation

Cervical cancer is the second most common cancer in Indian women – approximately 1.25 lakh new cases and 77,000 deaths annually. Unlike most cancers, it is almost entirely preventable: HPV (Human Papillomavirus) causes 99%+ of cervical cancers; HPV vaccination prevents infection; regular cervical screening (Pap smear or HPV test) detects pre-cancerous changes before they become cancer. Yet India's cervical cancer mortality rate remains high



| Click to Connect Now.



because: HPV vaccination coverage is low (improved with recent school immunisation programmes), and screening is largely absent outside urban centres – a rural gynaecologist or ASHA worker cannot perform and interpret a Pap smear, and colposcopy (the gold-standard diagnostic follow-up) requires specialist equipment and training available at medical colleges, not primary health centres. M/s Griva Healthcare Pvt Ltd, Visakhapatnam, has developed an AI-powered cervical cancer screening system that addresses exactly this last-mile diagnostic gap. The system uses a smartphone-attached speculum camera to capture cervical images; an on-device AI model (trained on 50,000+ labelled cervical images) classifies the image in seconds as normal, suspicious, or abnormal – with accuracy comparable to trained colposcopists in clinical trials. The TDB (Technology Development Board) under DST has supported Griva Healthcare's commercialisation of this technology this week, providing funding to scale production and deploy the device at 500 PHCs (Primary Health Centres) across Andhra Pradesh and Telangana.

Key Terms:

Term	Definition
Cervical cancer in India	2nd most common female cancer; 1.25 lakh new cases/year; 77,000 deaths/year; almost entirely preventable through HPV vaccination + screening; high mortality due to late detection in rural areas with no screening infrastructure
HPV (Human Papillomavirus)	Virus causing 99%+ of cervical cancers; transmitted sexually; HPV 16 and 18 are highest-risk strains; HPV vaccine (Gardasil, Cervarix) prevents infection; India's school vaccination programme (class 9 girls) expanding coverage; CERVAVAC (indigenous HPV vaccine, SII) now available
Griva Healthcare	Visakhapatnam-based medtech startup; AI-powered cervical cancer screening device; smartphone + speculum camera + on-device AI; trained on 50,000+ labelled cervical images; accuracy comparable to colposcopist in clinical trials; TDB-DST commercialisation support 2026
TDB (Technology Development Board)	DST body; funds commercialisation of indigenous technology; soft loans, equity support; bridges laboratory-to-market gap for Indian science and technology innovations; Griva Healthcare is TDB's medtech portfolio addition
Colposcopy	Specialist procedure using magnifying instrument (colposcope) to examine cervix closely; gold standard for diagnosing cervical abnormalities; requires trained gynaecologist + equipment + biopsy capability; available only at medical colleges and district hospitals – inaccessible to 60%+ of India's rural women





CERVAVAC	India's first indigenous HPV vaccine; developed by Serum Institute of India (SII); quadrivalent (covers HPV 6, 11, 16, 18); launched 2023; priced at ₹2,000/dose (vs ₹3,000-5,000 for imported vaccines); enabling India's own HPV vaccination programme at scale
PHC (Primary Health Centre)	First point of contact between community and medical system in rural India; one per 30,000 rural population; staffed by medical officer + nurses + ANMs; Griva Healthcare targeting 500 PHCs in AP and Telangana for device deployment – bringing specialist-level screening to primary care

Important Points for UPSC:

- PM's medtech article (8th Aug): PM Modi shared an article on India's growing self-reliant medtech ecosystem on the same week as Griva Healthcare's TDB support; deliberate or coincidental, the two together frame India's medtech indigenisation narrative – from PPE kits (2020) to AI cancer screening (2026)
- ASHA + AI: ASHA (Accredited Social Health Activist) workers are India's 10 lakh+ community health workers – they visit households, conduct maternal health monitoring, and are the primary cervical cancer awareness agents; Griva Healthcare's AI device, simple enough for an ANM to operate, extends ASHA's cancer screening capability to the household level
- Ayushman Bharat integration potential: AB-PMJAY covers cancer treatment at empanelled hospitals; but early detection (screening) coverage under Ayushman Bharat is limited; integrating Griva Healthcare's AI cervical screening into the Ayushman Bharat preventive care package would create a complete screen-to-treat pathway
- 50,000 labelled images: The AI model's training dataset is the differentiator – 50,000 labelled cervical images from Indian women (different skin tones, anatomical variations, lighting conditions) means the model is calibrated for Indian populations, not just validated on Western datasets (a common failure mode for AI diagnostics imported from USA/EU)
- Regulatory pathway: CDSCO (Central Drugs Standard Control Organisation) regulates medical devices; AI-based diagnostic devices classified as Class C or D (higher risk) require clinical trial data before approval; Griva Healthcare has completed clinical trials; TDB support for commercialisation implies CDSCO clearance is completed or imminent
- Cost comparison: Conventional colposcopy at district hospital: ₹2,000-5,000 per screening + patient travel; Griva Healthcare's AI device: ₹500-800 per screening at PHC level, no travel; at 1.25 crore women needing annual screening, the cost difference is ₹15,000-50,000 crore nationally – AI screening is not just better health, it's dramatically more cost-effective





UNUSUAL OZONE LAYER DISCOVERED ABOVE NORTH BAY OF BENGAL — INDIAN SCIENTISTS

Ministry: Ministry of Science & Technology / MoES

PIB Date: 10th August 2026

Easy Explanation

The stratospheric ozone layer — the thin shield of ozone molecules 15-35 km above the Earth's surface that absorbs 97-99% of the sun's harmful ultraviolet-B radiation — is not uniform. It varies in thickness with latitude, season, atmospheric circulation patterns, and chemical composition. A discovery by Indian scientists published this week found an unusual, anomalous ozone layer in the troposphere (the lower atmosphere, 0-12 km altitude) above the North Bay of Bengal — distinct from the normal stratospheric ozone and in a location and altitude where tropospheric ozone is not typically expected to be concentrated at such levels. The discovery has implications for two separate atmospheric phenomena: monsoon dynamics and air quality. The North Bay of Bengal is the primary moisture source for India's southwest monsoon — warm, humid air masses rise from the Bay, travel northwest, and deposit rain across the Indian subcontinent. Elevated tropospheric ozone in this region can affect atmospheric chemistry, potentially influencing convective activity (thunderstorm formation) and the thermal structure of the lower atmosphere that drives monsoon circulation. Additionally, tropospheric ozone at ground level is a harmful air pollutant — a component of urban smog — while elevated tropospheric ozone at higher altitudes affects crop yields (crops are sensitive to ozone damage through stomata). The Indian scientists' discovery, using a combination of satellite data (from ISRO's INSAT and NASA's Aura satellite) and ground-based measurements at coastal stations, is the first documentation of this ozone anomaly and opens a new line of atmospheric science research specific to the Bay of Bengal region.

Key Terms:

Term	Definition
Stratospheric ozone layer	Located 15-35 km altitude; 'good ozone' — absorbs 97-99% UV-B radiation; without it, UV-B would cause skin cancer, cataracts, crop damage at epidemic scale; Montreal Protocol (1987) protects it by banning CFCs
Tropospheric ozone	Ozone in lower atmosphere (0-12 km); 'bad ozone' at ground level — lung irritant, crop damager, greenhouse gas; forms from NO _x + VOC + sunlight; different from protective stratospheric ozone; discovery is of anomalous tropospheric ozone concentration above Bay of Bengal
North Bay of Bengal	Northern portion of Bay of Bengal adjacent to Bangladesh, West Bengal, Odisha coasts; primary moisture source for Indian southwest monsoon; warm sea surface temperatures (28-30°C) drive



| Click to Connect Now.



	evaporation and atmospheric convection; unusual ozone here affects monsoon atmospheric chemistry
Montreal Protocol (1987)	International treaty to protect stratospheric ozone layer; phased out CFCs (chlorofluorocarbons), HCFCs, and other ozone-depleting substances; most successful environmental treaty; ozone hole over Antarctica is recovering – expected full recovery by 2050-2060
INSAT satellite data	India's geostationary meteorological satellite series; INSAT-3D and 3DR have atmospheric sounder instruments that measure ozone profiles; Indian scientists used INSAT data alongside NASA's Aura satellite (which has a dedicated ozone measurement instrument) for the Bay of Bengal discovery
Monsoon-ozone interaction	Ozone absorbs solar radiation and heats the atmosphere at that altitude; elevated tropospheric ozone over Bay of Bengal changes the thermal structure that drives monsoon circulation; could affect timing, intensity, or spatial pattern of monsoon rainfall – implications for IMD's monsoon forecasting models
Crop damage from ozone	Elevated tropospheric ozone enters crop leaves through stomata; disrupts photosynthesis; wheat and rice are particularly sensitive; estimated 10-15% reduction in crop yields globally from ozone exposure; Bay of Bengal ozone discovery relevant for agricultural impact modelling in eastern India

Important Points for UPSC:

- Good ozone vs bad ozone: A perennial UPSC distinction – stratospheric ozone = protective, Montreal Protocol preserves it; tropospheric ozone = pollutant at ground level, produced by NO_x + VOC reactions, component of photochemical smog; the Bay of Bengal discovery is of tropospheric ozone at a specific altitude, not ground-level smog
- Montreal Protocol success: Signed 1987, entered force 1989; 197 parties (universal ratification); phased out CFCs, HCFCs; Kigali Amendment (2016) added HFCs (powerful greenhouse gases); ozone hole healing – largest ozone hole recorded in 2006, subsequent reduction; projected full recovery by 2065; most cited example of successful global environmental governance
- Mission Mausam connection: India's Mission Mausam (MoES, approved 2024, ₹2,000 crore) upgrades weather observation, forecasting, and atmospheric research; the Bay of Bengal ozone discovery likely used Mission Mausam's enhanced observation infrastructure; atmospheric science discoveries are outputs of this mission





- ISRO-MoES collaboration: ISRO provides satellite data (INSAT atmospheric sounders, Oceansat, EOS series); MoES provides ground-based observation network (IMDPS, ocean buoys, coastal stations); their collaboration on the Bay of Bengal ozone discovery is a model for how India's space and earth science agencies jointly advance atmospheric research
- Climate change + ozone interaction: Climate change is cooling the stratosphere (CO₂ warms lower atmosphere but cools upper atmosphere); cooler stratosphere creates conditions for more ozone depletion even as CFC concentrations decline; this complex interaction is an active research frontier – the Bay of Bengal tropospheric discovery adds another dimension
- IMD forecasting implications: If Bay of Bengal tropospheric ozone influences monsoon convection patterns, IMD's ensemble weather models must incorporate ozone chemistry; currently, most operational weather models treat ozone as a fixed parameter; this discovery may require model updates for improving monsoon prediction accuracy

NEW COMPUTER MODEL FOR CME FORECASTING — SPACE WEATHER PREDICTION ADVANCE

Ministry: Ministry of Science & Technology

PIB Date: 13th August 2026

Easy Explanation

On 10th May 2024, the most powerful geomagnetic storm in 20 years hit Earth – a G5-level event caused by a series of Coronal Mass Ejections (CMEs) from the Sun. Satellites experienced orbital drag; GPS accuracy degraded globally; radio communications were disrupted; and at latitudes far south of the usual auroral zones (including parts of India), spectacular auroras were visible. It was a beautiful reminder of a very real threat: powerful space weather events can disable satellites, disrupt power grids, and knock out communication infrastructure – with economic damage estimated in the hundreds of billions of dollars for a direct hit on major infrastructure. The problem with CME forecasting is fundamental: we can detect a CME leaving the Sun, but predicting precisely where it will hit Earth, how powerful the geomagnetic storm will be, and when it will arrive (transit time: 1-3 days) with adequate accuracy for infrastructure operators to take protective action – that remains extremely difficult. Indian scientists (from IIA – Indian Institute of Astrophysics, Bengaluru, and ISRO's Space Applications Centre) published a new computer model this week that improves CME impact prediction. The model traces how magnetic energy builds up in active solar regions before a CME eruption – identifying precursor signatures 12-24 hours before the CME launches – and forecasts the likely impact parameters (speed, magnetic field direction) when the CME reaches Earth's magnetosphere. The critical improvement: the magnetic field direction (B_z component) determines whether a CME causes a major geomagnetic storm or passes harmlessly – if B_z is southward, Earth's magnetosphere is vulnerable; northward B_z = no storm. Previous models could not predict B_z accurately; the new Indian model claims improved B_z prediction.

Key Terms:



| Click to Connect Now.



Term	Definition
CME (Coronal Mass Ejection)	Massive eruption of plasma and magnetic field from the Sun's corona; travels at 400-3,000 km/s; reaches Earth in 1-3 days; can cause geomagnetic storms; not to be confused with solar flares (light, no mass ejection; affects radio communications immediately)
Geomagnetic storm	Disturbance of Earth's magnetosphere caused by CME impact; G1-G5 scale (G5 = extreme); effects: satellite drag, GPS degradation, radio blackouts, power grid damage, aurora at low latitudes; Carrington Event (1859, G5 equivalent) destroyed telegraph systems across North America and Europe
Bz component	North-south component of the CME's magnetic field; southward Bz = CME couples efficiently with Earth's magnetosphere → severe geomagnetic storm; northward Bz = CME deflected by magnetosphere → minimal storm; the most critical and hardest-to-predict CME parameter
IIA (Indian Institute of Astrophysics)	Autonomous institute under DST; Bengaluru; optical and radio astronomy, solar physics; operates Kodaikanal Solar Observatory (Tamil Nadu) and Hanle Observatory (Ladakh); lead institution for solar CME research in India
ISRO's Aditya-L1 connection	Aditya-L1, launched September 2023, is India's first solar observatory; stationed at Sun-Earth Lagrange Point 1 (1.5 million km from Earth); continuously observes solar corona and CMEs; Aditya-L1 data is being incorporated into the new CME forecasting model
Precursor signatures (12-24 hours)	The new model identifies magnetic energy buildup patterns in solar active regions 12-24 hours before CME eruption; this lead time is crucial – satellite operators can lower orbits, power grid operators can pre-position circuit breakers, GPS systems can switch to backup modes
NOAA Space Weather Prediction Center	USA's primary space weather forecasting centre; issues CME alerts that global infrastructure operators follow; India's new model, if validated, could be shared with NOAA for inclusion in global forecasting – establishing India as a space weather science contributor

Important Points for UPSC:



| Click to Connect Now.



- Carrington Event 1859: The most powerful geomagnetic storm in recorded history; caused by a CME that hit Earth within 17 hours (extraordinarily fast); telegraph systems worldwide failed; fires at telegraph offices; if a Carrington-equivalent hit Earth today, estimated \$1-3 trillion damage (satellite losses, power grid collapse, internet disruption)
- Aditya-L1's role: India's Aditya-L1 at L1 (Lagrange Point 1) observes CMEs unobstructed by Earth's shadow; its VELC (Visible Emission Line Coronagraph) and SUI (Solar UV Imaging Telescope) instruments provide real-time solar corona data; the new CME model uses Aditya-L1 data alongside NASA's SOHO and STEREO spacecraft
- LIGO-India connection: Just as CME forecasting requires understanding electromagnetic phenomena in space, LIGO-India (gravitational wave detector, planned for Maharashtra, 2030s) will detect gravitational waves from neutron star mergers; both represent India investing in frontier observational infrastructure for space science
- Infrastructure protection economics: A modern satellite costs \$200-500 million; a geomagnetic storm can degrade a satellite's orbit (increased atmospheric drag at low Earth orbit) by 10-50 km in a single event – potentially cutting its operational life by months; accurate CME forecasting allows satellite operators to raise orbits (fuel expenditure) to avoid drag
- Kodaikanal Solar Observatory: IIA's solar observatory at Kodaikanal, Tamil Nadu; operational since 1899; continuous solar observation data spanning 125+ years; this long baseline data is used in the new CME model to understand solar activity cycles (11-year sunspot cycle) and their relation to CME frequency
- Solar maximum 2024-2025: Solar Cycle 25, currently at its peak (solar maximum); higher CME frequency and intensity during solar maximum; the May 2024 G5 storm occurred during this solar maximum; Indian CME model published now – at solar maximum – is timely for protecting India's growing satellite fleet

ICMR-SHINE 2026 — SCHOOL STUDENTS SPEND A DAY AS SCIENTISTS ACROSS 83 LOCATIONS

Ministry: Ministry of Health and Family Welfare / ICMR / DHR

PIB Date: 11th August 2026

Easy Explanation

SHINE — Science Harnessing Innovative New Endeavours — is ICMR's (Indian Council of Medical Research) flagship science outreach programme that invites school students across India to spend a day in a real biomedical research laboratory, working alongside scientists, handling actual laboratory equipment, and experiencing what scientific research looks like from the inside. SHINE 2026, announced by the Department of Health Research (DHR-ICMR) and concluded this week after its two-day run, expanded to 83 locations — ICMR institutes, affiliated research centres, and partner hospitals across 29 states and UTs. Over 5,000 school students (Classes 9-12) participated, each spending a day in a laboratory conducting supervised experiments: blood group typing, bacteria culture and gram staining, DNA extraction from fruit, basic epidemiological calculations, and microscopy.



| Click to Connect Now.



The programme addresses a specific problem in India's science talent pipeline: most students decide whether to pursue science careers before ever experiencing actual scientific research; they make this choice based on textbook science, which bears little resemblance to laboratory research. A student who experiences pipetting, centrifugation, and gel electrophoresis in Class 10 has a fundamentally different and more accurate basis for choosing a science career than one who only reads about it. SHINE 2026's expansion to 83 locations (from 45 in 2024) reflects both ICMR's institutional commitment and the programme's demonstrated demand – schools in Tier 2 and Tier 3 cities were on waiting lists for participation slots.

Key Terms:

Term	Definition
ICMR (Indian Council of Medical Research)	India's apex biomedical research body; under DHR (Department of Health Research), MoHFW; 26 national institutes; research on infectious diseases, cancer, nutrition, reproductive health; also manages SHINE science outreach
SHINE (Science Harnessing Innovative New Endeavours)	ICMR's school science outreach programme; students spend a day in real research laboratory; 83 locations across 29 states/UTs in 2026; Classes 9-12 students; hands-on experiments: blood typing, bacteria culture, DNA extraction, microscopy
DHR (Department of Health Research)	Ministry of HFW department; oversees biomedical research policy; manages ICMR; funds health research through extra-mural grant programme; coordinates India's clinical trial framework; SHINE is a DHR-ICMR joint initiative
Science talent pipeline	India produces 15+ lakh engineering graduates and 3+ lakh science graduates annually; but biomedical research workforce is thin – PhD researchers in life sciences: ~8,000 new per year (India needs ~20,000 for ambitions); SHINE addresses early interest cultivation
Hands-on experiments	SHINE 2026 experiments: ABO blood group typing (agglutination), gram staining of bacteria (visualising gram+ vs gram- bacteria), DNA extraction (banana or onion), basic epidemiological calculation (attack rate, case fatality rate), light microscopy of blood smear; all safe, educational, memorable
83 locations → 29 states/UTs	SHINE 2026's geographic expansion: 45 locations (2024) → 83 (2026); includes: AIIMS (New Delhi, Mumbai, Bhubaneswar, Jodhpur, Nagpur), NIMHANS (Bengaluru), NIN (Hyderabad), ICMR-NCI (Jhajjar), ICMR-NIRT (Chennai) + partner hospitals; Tier 2/3 city inclusion is the significant expansion





Science outreach ecosystem	SHINE + INSPIRE programme (DST: 1 lakh INSPIRE scholarships/year) + KVPY (Kishore Vaigyanik Protsahan Yojana, now discontinued) + OM Birla Science (PM's 75 science institutions) + ICMR Junior Research Fellowships = India's layered science talent cultivation system
-----------------------------------	--

Important Points for UPSC:

- **INSPIRE connection:** DST's INSPIRE (Innovation in Science Pursuit for Inspired Research) programme offers 1 lakh scholarships/year to top 1% students in Class 12 science stream to pursue science degrees; SHINE can serve as a feeder pipeline – students who participate in SHINE are more likely to choose science streams and qualify for INSPIRE
- **Biomedical research context:** ICMR developed India's COVID diagnostic kits (2020), conducted COVID serosurveys, runs TB, malaria, dengue, and HIV research programmes; India's ability to respond to future health emergencies depends on having a strong biomedical research workforce; SHINE's students are that workforce in 10-15 years
- **Gender dimension:** SHINE prioritises girls' participation (50%+ target); biomedical research has historically been male-dominated; early exposure through SHINE specifically targets girls from Tier 2/3 cities where cultural barriers to science careers for girls are highest
- **National Education Policy 2020 alignment:** NEP 2020 emphasises experiential learning, critical thinking, and connecting classroom to real-world applications; SHINE is NEP 2020's experiential learning philosophy applied to medical science – students learn through doing, not just reading
- **83 locations significance:** India has 640+ districts; 83 SHINE locations covers approximately 13% of districts; most are in state capitals and major cities; next phase should reach 200+ locations to genuinely democratise science experience; ICMR waiting lists suggest demand far exceeds supply
- **Gram staining as a teaching moment:** When a student gram stains a bacterium and sees under the microscope whether it's gram-positive (purple – cell wall retains crystal violet dye) or gram-negative (red – cell wall doesn't retain dye), they are doing the same technique that a hospital microbiologist does before prescribing antibiotics; SHINE makes real science accessible, not simplified science

MONSOON SESSION 2026 — PARLIAMENT ADJOURNS SINE DIE, 12 BILLS PASSED

Ministry: Ministry of Parliamentary Affairs

PIB Date: 13th August 2026

Easy Explanation



| Click to Connect Now.



The 271st Session of the Rajya Sabha – the Monsoon Session 2026 of Parliament – adjourned sine die on 13th August 2026 (the day before Independence Day), with 12 Bills having been passed by both Houses. The Rajya Sabha Chairman's valedictory remarks noted productive business despite periodic disruptions. Monsoon Session is typically Parliament's shortest session (4-5 weeks) but has historically been among its most productive for legislation, as the government uses it to pass bills before the extended winter recess. Key Bills passed in Monsoon Session 2026: The MSME Development (Amendment) Bill 2026 (raises MSME definitions, expands credit eligibility – covered as a PIB Backgrounder this week); The MMDR Amendment Bill 2026 (Mines and Minerals Development and Regulation – critical minerals governance – covered in PIB Backgrounder this week); the Competition (Amendment) Bill 2026 (digital markets competition provisions for CCI); the Waqf (Amendment) Bill 2026 was also listed but was referred to a Joint Parliamentary Committee (JPC) – not passed this session; several appropriation bills and finance committee-cleared legislation completed. The session's legislative output of 12 bills in approximately 30 sitting days reflects a bills-to-sitting-days ratio of 0.4 – historically average for a Monsoon Session. The valedictory remarks by the Rajya Sabha Chairman specifically noted concerns about members' behaviour disrupting proceedings – an institutional governance note that connects to the broader question of Parliament's functioning and the Speaker/Chairman's authority over House conduct.

Key Terms:

Term	Definition
Sine die adjournment	Latin: 'without a day'; Parliament adjourns sine die when a session ends with no date fixed for resumption; different from prorogation (which formally ends a session and cancels all pending business); sine die = session continues technically until prorogated by President
Prorogation vs Adjournment	Adjournment: temporary suspension of House business (minutes to days); Adjournment sine die: end of session without date; Prorogation: formal end of session by President (under Article 85); Dissolution: end of Lok Sabha itself (under Article 85, only for LS, not RS)
271st Session of Rajya Sabha	Rajya Sabha is a permanent house (never dissolved); sessions are numbered continuously; 271st session = Monsoon 2026; RS Chairman's valedictory remarks are a constitutional tradition – assess session's conduct and legislative output
12 Bills passed	Monsoon Session 2026: 12 Bills passed by both Houses; includes MSME Amendment Bill 2026, MMDR Amendment Bill 2026, Competition Amendment Bill 2026; bills passing both Houses = ready for Presidential assent → becomes Act





Joint Parliamentary Committee (JPC)	Ad hoc committee with members from both Houses; examines a specific bill in detail; receives public submissions, expert testimony; reports back to Parliament; Waqf Amendment Bill referred to JPC – postpones contentious legislation without outright rejection
Article 85	President summons Parliament; prorogue its sessions; dissolve Lok Sabha; on Council of Ministers' advice; President's address to joint sitting (Article 87); Parliament's session framework under Part V, Chapter II of Constitution
Rajya Sabha Chairman	Vice President of India is ex-officio Chairman of Rajya Sabha; Deputy Chairman elected by RS members; Chairman presides over RS; maintains order; rules on admissibility of questions, notices; valedictory remarks assess session conduct

Important Points for UPSC:

- Three sessions: Parliament meets in three sessions – Budget Session (Feb-May, longest), Monsoon Session (July-Aug), and Winter Session (Nov-Dec); Budget Session has two parts (pre-budget recess in March-April); no constitutionally mandated number of sessions, but convention and Supreme Court guidance suggest at least 3 per year
- MSME + MMDR Acts now law: Two bills covered as PIB Backgrounders this week – MSME Development (Amendment) Bill 2026 and MMDR Amendment Bill 2026 – were passed in Monsoon Session 2026; they now await Presidential assent to become Acts; UPSC will test these as 'recently enacted legislation' in 2027 exam cycle
- Zero Hour and Question Hour: Parliament's daily business includes Question Hour (first hour, oral questions to ministers), Zero Hour (immediately after QH, matters of urgent public importance without prior notice), and legislative business (bills, discussions); disruptions during QH/ZH – which the RS Chairman noted – reduce Parliament's oversight function even when legislation passes
- Sine die vs prorogation timeline: After sine die adjournment (13th Aug), President prorogues the session typically within a few days; after prorogation, the government can summon the next session (Winter Session 2026, likely November-December); any bill pending at prorogation in RS lapses (RS does not expire, but Rajya Sabha pending bills lapse on prorogation unlike LS which lapses only on dissolution)
- Parliamentary productivity metrics: India's Parliament passes 40-80 bills per year across 3 sessions; by comparison, UK Parliament passes 30-40; USA Congress (bicameral, harder to pass bills) 200-300; India's bills-per-sitting-hour ratio has declined over decades due to more frequent disruptions – the RS Chairman's concerns are data-backed
- Waqf Amendment Bill background: Waqf Board reforms have been contentious; Waqf (Amendment) Bill 2024 was referred to JPC; JPC report presented but opposition disagreed; Monsoon Session 2026





reference to JPC again suggests government is still building consensus on one of India's most contested legislative proposals

NEXT GENERATION OFFSHORE PATROL VESSEL LAUNCHED — NAVAL INDIGENISATION CONTINUES

Ministry: Ministry of Defence / Indian Navy

PIB Date: 11th August 2026

Easy Explanation

The launch of India's Next Generation Offshore Patrol Vessel (NGOPV) on 11th August marks the beginning of India's most ambitious coast guard and naval patrol fleet expansion programme. Offshore Patrol Vessels are the workhorses of maritime security — they are not the glamorous frontline warships like frigates or destroyers, but they are the vessels that do the daily work of maritime law enforcement: EEZ (Exclusive Economic Zone) patrolling, anti-piracy operations, fishermen rescue, oil rig protection, anti-narcotics at sea, and search and rescue. India's vast maritime domain — 7,517 km coastline, 2 million sq km EEZ — requires dozens of OPVs operating continuously. The NGOPV programme, involving the construction of multiple vessels of this class at Indian shipyards, represents a new design generation: larger than the previous OPV class (3,000+ tonnes vs 2,100 tonnes), with better endurance (60 days at sea vs 30 days), helicopter landing and hangaring capability, advanced sensors, and water cannon/FCS (Fire Control System) for non-lethal law enforcement at sea. The vessel is being built by an Indian shipyard (Goa Shipyard Limited, or L&T or Cochin Shipyard — the lead yard for this class) under the 'Make in India' defence procurement framework, with over 75% indigenous content. The launch follows DSC A24 (Week 10) and INS Machilipatnam (Week 9) — India's naval shipbuilding is commissioning or launching a new vessel approximately every fortnight in 2026.

Key Terms:

Term	Definition
OPV (Offshore Patrol Vessel)	Medium-sized patrol ship for maritime security tasks: EEZ patrol, anti-piracy, search & rescue, fisheries protection, anti-narcotics; not a frontline warship; India Coast Guard and Indian Navy both operate OPVs; 1,500-4,000 tonne displacement range
NGOPV (Next Generation OPV)	New class of OPV for Indian Navy/Coast Guard; 3,000+ tonnes; 60-day endurance; helicopter hangar; advanced sensors; 75%+ indigenous content; built at Indian shipyard under Make in India defence procurement
EEZ (Exclusive Economic Zone)	200 nautical mile maritime zone where India has sovereign rights for resource exploitation (fishing, oil, gas, minerals) and jurisdiction over



| Click to Connect Now.



	pollution; India's EEZ = 2 million sq km; OPVs are primary EEZ patrol vessels
Goa Shipyard Limited (GSL)	Defence Public Sector Undertaking; Vasco da Gama, Goa; builds OPVs, fast patrol vessels, survey ships for Navy and Coast Guard; one of India's primary shipbuilders for medium-class vessels; likely lead yard for NGOPV
75% indigenous content	Make in India defence target; hull, machinery, combat management system, radar, weapon mounts increasingly sourced domestically; reduces foreign exchange outflow, builds defence industrial base; each NGOPV represents ₹800-1,200 crore in domestic manufacturing
Indian Navy's shipbuilding pace	2026 commissioning/launch record: INS Machilipatnam (Week 9), DSC A24 (Week 10), NGOPV (Week 11); Navy is adding approximately one vessel every 2-3 weeks; unprecedented peacetime naval construction rate; 46 warships and submarines under construction at Indian yards
Blue Water ambitions	India's naval doctrine: expanding from brown water (coastal) to blue water (ocean-going); NGOPV's 60-day endurance allows Indian Ocean patrolling; connects to India's SAGAR (Security and Growth for All in the Region) maritime diplomacy doctrine

Important Points for UPSC:

- India's shipbuilding ecosystem 2026: Mazagon Dock Shipbuilders (Mumbai) – submarines, destroyers, frigates; Cochin Shipyard – aircraft carrier INS Vikrant, Coast Guard vessels; Garden Reach Shipbuilders (Kolkata) – corvettes, survey ships, fast patrol vessels; Goa Shipyard – OPVs, FPVs; L&T Defence (Hazira) – warships, OPVs; five major naval yards simultaneously building 46 vessels
- Coast Guard vs Navy OPVs: Indian Coast Guard (ICG) operates 156 ships (as of 2025); needs 200+ for adequate EEZ coverage; Indian Navy operates 150+ surface vessels; NGOPV class may serve both – some commissioned into Navy, some into ICG under their respective operational frameworks
- SAGAR doctrine (Security and Growth for All in the Region): PM Modi's 2015 Maritime Security doctrine; India as net security provider in Indian Ocean; requires OPV capacity to respond to regional distress calls (Sri Lanka, Maldives, Seychelles, Mauritius have benefited from India's OPV-based emergency assistance)
- Anti-narcotics significance: Indian Ocean is a major drug trafficking route (Afghan opium → Makran coast → dhows → Africa/Southeast Asia); Coast Guard + Navy OPVs have been increasingly successful in drug seizures (2023: 7,000 kg heroin seized at sea; 2024: multiple record hauls); NGOPV's endurance and sensors specifically enhance anti-narcotics interdiction





- Defence exports: India is now exporting naval vessels – coast guard patrol boats to Mauritius, Sri Lanka, Vietnam; NGOPV-class vessels could eventually be exported under India's defence export target (\$5 billion by 2028-29); naval shipbuilding for export is a new and growing component of India's defence industrial strategy

ISRO ON LEO SATELLITE MEGA-CONSTELLATIONS AND SPACE DEBRIS — INDIA'S FORMAL POSITION

Ministry: Department of Space / ISRO

PIB Date: 13th August 2026

Easy Explanation

In response to a Parliamentary Question, the Department of Space (through ISRO) issued what is, in effect, India's first formal public position on one of the most consequential debates in 21st-century space governance: the proliferation of Low Earth Orbit (LEO) satellite mega-constellations and their contribution to space debris accumulation. The trigger: SpaceX's Starlink constellation now has 6,000+ active satellites in LEO; Amazon's Project Kuiper, OneWeb (Eutelsat), and China's Guowang constellation are adding thousands more. Within a decade, there could be 50,000-100,000 active satellites in LEO – compared to approximately 10,000 today. The problem: every satellite that fails (from collision, battery failure, or design flaw) becomes a debris object. Every debris object increases collision risk for operational satellites. Collisions create more debris (Kessler Syndrome) – theoretically cascading into a debris field that makes certain LEO orbits permanently unusable. ISRO's Parliamentary statement confirmed: ISRO is 'seized of the issue' (formal bureaucratic language for 'we recognise this as a serious problem and are working on it'); India supports ITU (International Telecommunication Union) and UN COPUOS (Committee on the Peaceful Uses of Outer Space) frameworks for coordinating LEO usage and debris mitigation; ISRO has conducted 19 Collision Avoidance Manoeuvres (CAMs) for Indian satellites in 2025-26 to avoid debris; and ISRO is developing a Space Situational Awareness (SSA) programme to track objects in India's orbital neighbourhoods.

Key Terms:

Term	Definition
LEO (Low Earth Orbit)	200-2,000 km altitude; most satellites operational here; ISS at 408 km; Starlink at 550 km; shortest orbital lifetime (atmospheric drag causes reentry within years); most congested orbital zone; highest debris accumulation risk
Mega-constellations	Hundreds to thousands of satellites operated by a single entity in LEO; Starlink (SpaceX): 6,000+ satellites; Project Kuiper (Amazon):



| Click to Connect Now.



	3,200 planned; OneWeb (Eutelsat): 648; Guowang (China): 13,000 planned; collectively creating unprecedented orbital congestion
Kessler Syndrome	Theoretical cascade: one satellite collision creates debris → debris causes more collisions → more debris → exponential cascade rendering certain LEO bands permanently unusable; proposed by NASA scientist Donald Kessler (1978); increasingly credible as LEO congestion grows
CAM (Collision Avoidance Manoeuvre)	Rocket burn to move a satellite to avoid predicted close approach with debris; ISRO conducted 19 CAMs for Indian satellites in 2025-26 (vs 3 in 2010); frequency increase reflects growing debris environment; each CAM costs fuel, reducing satellite operational life
SSA (Space Situational Awareness)	Tracking all objects in orbit (active satellites + debris + rocket bodies); requires radar, telescopes, data sharing with other nations; India's SSA programme under development; USA's Space-Track.org currently provides primary SSA data globally – India wants independent capability
UN COPUOS	Committee on the Peaceful Uses of Outer Space; UN General Assembly body; develops guidelines for space activities; adopted Space Debris Mitigation Guidelines (2007, non-binding); Long-Term Sustainability Guidelines (2019); India is an active COPUOS member pushing for stronger debris regulations
ITU (International Telecommunication Union)	UN agency; manages global radio spectrum and satellite orbital slots; assigns frequency bands and orbital positions to national administrations; key forum for mega-constellation regulation; ITU's coordination process is slow relative to commercial satellite deployment pace – a governance gap

Important Points for UPSC:

- India's OneWeb stake: India (through ISRO commercial arm NewSpace India Limited, NSIL) holds a stake in OneWeb (Eutelsat OneWeb) – India is simultaneously a co-owner of a LEO mega-constellation AND concerned about LEO congestion from mega-constellations; this conflict of interest shapes India's nuanced COPUOS position
- Starlink in India: SpaceX has been seeking Starlink approval in India for years; IN-SPACe and DoT have been cautious; ISRO's concerns about LEO congestion are partly connected to Starlink's Indian market entry – India wants regulatory conditions (debris mitigation, spectrum sharing) before approving Starlink's full deployment





- Aditya-L1 connection: Aditya-L1 at L1 is not in LEO (it's at 1.5 million km from Earth); it is unaffected by LEO debris; but ISRO's LEO satellites (EOS series, RISAT, Cartosat, communication satellites) conduct CAMs regularly; ISRO's SSA programme must track the objects that threaten these
- Kessler Syndrome prevention: ITU now requires new satellites to deorbit within 5 years of end-of-mission (revised from 25 years, 2023); Starlink satellites are designed to deorbit in 1-5 years using atmospheric drag; but with 50,000+ satellites, even a 1% failure rate means 500 zombie satellites/year – debris accumulation outpacing mitigation
- Space Vision 2047: India's space ambitions (Gaganyaan, BAS, Chandrayaan-4, Mangalyaan-3) require reliable LEO/GEO operations; uncontrolled debris in LEO directly threatens India's space programme; India's formal position statement is therefore not just diplomatic – it is a strategic self-interest assertion
- ISRO's CAM database: 19 CAMs in 2025-26 (3 per year in 2010) – a 6x increase in CAM frequency in 15 years; at this trajectory, ISRO satellites may need 40-50 CAMs/year by 2030 (as Starlink/Kuiper constellation deployment completes); each CAM = fuel burn = reduced satellite life; economic cost of debris is real for ISRO

CUMULATIVE EXPORTS APRIL-JULY 2026-27 – \$316.42 BILLION, 13.16% GROWTH

Ministry: Ministry of Commerce & Industry

PIB Date: 13th August 2026

Easy Explanation

India's cumulative exports (merchandise + services combined) for April-July 2026-27 (the first four months of the current financial year) reached \$316.42 billion – a growth of 13.16% over \$279.63 billion in the same period of 2025-26. This is a significant and broad-based export performance, coming against a backdrop of global trade headwinds: a slowdown in China's economy reducing global commodity demand, ongoing disruptions to Red Sea shipping routes (Houthi attacks on vessels), and a strong US dollar that makes Indian exports relatively more expensive. The \$316.42 billion breaks down approximately: services exports (~\$170-175 billion, 4-month estimate), accounting for slightly more than half; and merchandise exports (~\$141-146 billion), growing from a recovery base. India's merchandise export growth is being led by: electronics (India's electronics exports crossed \$20 billion in FY2024-25 for the first time; Apple iPhone production at Foxconn's Tamil Nadu plant is the headline item), pharmaceuticals (steady growth; strong US generic drug market), engineering goods (machinery, auto components), and petroleum products (refining margins normalised but volumes healthy). Services exports remain India's consistent strength – IT services, business process management, financial services, education, and tourism services together make India one of the world's top 7 services exporters. The 13.16% growth rate, if maintained over the full year, would put India on track for \$950-1,000 billion total exports for FY2026-27 – an all-time record that would be a major milestone for India's trade ambitions.



| Click to Connect Now.

**Key Terms:**

Term	Definition
\$316.42 billion (Apr-Jul 2026-27)	India's combined merchandise + services exports for April-July 2026-27; 13.16% growth over \$279.63 billion (April-July 2025-26); first 4 months of FY2026-27; Government of India provisional estimate
Merchandise vs services exports	Merchandise: physical goods (engineering, pharma, textiles, electronics, petroleum); India's merchandise exports ~\$430-450 billion/year; Services: IT, BPM, financial, education, tourism; India's services exports ~\$340-360 billion/year; combined: ~\$780-800 billion FY2025-26
Electronics export growth	Apple iPhone production in India (Foxconn Tamil Nadu, Wistron Karnataka, Pegatron Tamil Nadu) → India's electronics exports grew to \$25+ billion FY2025-26; PLI for Mobile Phones + Apple's China+1 sourcing strategy; electronics is now India's fastest-growing merchandise export category
Red Sea disruption	Houthi militia attacks on commercial vessels in Red Sea since November 2023; most ships rerouted around Cape of Good Hope (30% longer, 10-15 days extra); increases shipping costs by \$2,000-3,000/container; affects India's exports to Europe; Indian exporters absorbing higher freight as cost competitiveness challenge
13.16% growth significance	If maintained for full year: India on track for \$950-1,000 billion total exports; India's target: \$2 trillion exports by 2030 (merchandise \$1 trillion + services \$1 trillion); 13.16% growth rate consistent with reaching this target if sustained; above the GDP growth rate, meaning export intensity of Indian economy increasing
Current Account Deficit (CAD)	India's trade deficit (imports > exports) creates current account deficit; sustained export growth reduces CAD; Q1 FY2026-27 CAD estimated at 1.5-2% of GDP (within comfort zone); strong services exports (especially IT) are the CAD's natural hedge
APEDA exports	Agricultural and Processed Food Products exports: rice (Basmati and non-Basmati), spices, marine products, fruits, vegetables; India's agricultural exports \$50+ billion/year; APEDA's facilitation of Mithila Makhana (Art 11) and Mustard Honey (Art 12) this week are micro-examples of this macro trend





Important Points for UPSC:

- \$1 trillion merchandise exports by 2030: India's target; requires 15-18% annual merchandise export growth from current ~\$450 billion; achievable with electronics, pharma, engineering goods growth + new sectors (semiconductors, EVs, defence); 13.16% Q1 growth is the right trajectory but needs acceleration
- Services exports: India's invisible exports; IT services are the largest component (\$180+ billion/year, primarily to USA and UK); TCS, Infosys, Wipro, HCL are global IT majors; India's services export growth is structurally strong (remote work normalised, digital transformation spending by global corporations continues)
- China+1 strategy: Global companies reducing China manufacturing dependency post-COVID; India is the primary beneficiary – Apple/iPhone is the most visible, but also Samsung (mobile), Foxconn (electronics), various automotive components; India's merchandise export growth is partly structural (China+1 trend) not just cyclical
- RCEP absence: India withdrew from RCEP (Regional Comprehensive Economic Partnership, 15 Asia-Pacific nations FTA) in 2019; RCEP members now trade among themselves at preferential tariffs that India doesn't access; India's export competitiveness in Asia-Pacific is constrained by this; ongoing India-UK, India-EU, India-SACU (this week) FTA negotiations are the alternative strategy
- Rupee's role: A weaker rupee makes Indian exports cheaper in dollar terms; RBI's managed float keeps rupee relatively stable (₹83-85/dollar range); competitive rupee level (not too strong) supports exporters without triggering import inflation
- Merchandise export composition for UPSC: Engineering goods (25%), Petroleum products (17%), Gems and jewellery (10%), Pharma (7%), Chemicals (7%), Electronics (5%, growing rapidly), Agriculture (9%), Textiles (5%); understanding this composition is essential for questions on India's export diversification strategy

NABL — INDIA'S FIRST ACCREDITATION SCHEME FOR MOBILE FOOD TESTING LABORATORIES

Ministry: Ministry of Commerce & Industry / NABL / Quality Council of India

PIB Date: 10th August 2026

Easy Explanation

Food safety testing in India has a fundamental reach problem: food labs are located in cities, but food adulteration happens everywhere – in village mandis, at highway dhabas, in district-level spice grinding units, at remote dairy cooperatives. FSSAI (Food Safety and Standards Authority of India) can take food samples, but sending them to a city laboratory means 3-7 days for results – by which time the food has been consumed, the adulteration continues, and the regulatory response is too late to protect health. Mobile Food Testing Laboratories – labs built into vehicles (trucks, vans) that can drive to the source, test on-site, and give results in hours – are the solution. But until this



| Click to Connect Now.



week, there was no nationally recognised accreditation standard for such mobile labs. An unaccredited mobile food testing lab produces results that cannot be legally used in enforcement proceedings, cannot be accepted by courts, and cannot be submitted to FSSAI for regulatory action. The National Accreditation Board for Testing and Calibration Laboratories (NABL) – India's government accreditation body for testing and calibration labs, functioning under the Quality Council of India – launched India's first accreditation scheme specifically for Mobile Food Testing Laboratories. This means a mobile lab that passes NABL's accreditation can produce legally admissible food safety test results anywhere in India – at a mandi in Bihar, at a dairy cooperative in Gujarat, or at a spice market in Kerala – with the same legal standing as a fixed NABL-accredited laboratory.

Key Terms:

Term	Definition
NABL (National Accreditation Board for Testing and Calibration Laboratories)	India's government accreditation body for labs; under Quality Council of India (QCI), MoCI; accredits testing labs (food, water, environment, medical) and calibration labs; NABL accreditation = lab's results are trustworthy, traceable to national/international standards
Mobile Food Testing Laboratory	Food testing lab built into a vehicle; moves to food production/sale locations; tests on-site; gives results in hours vs days for fixed labs; essential for remote area food safety enforcement; previously lacked formal accreditation framework
QCI (Quality Council of India)	Not-for-profit body, MoCI; apex body for quality promotion in India; operates NABL, NAB (National Accreditation Board for Certification Bodies), and NABET (environmental auditors); India's quality standards architecture
FSSAI (Food Safety and Standards Authority of India)	India's apex food regulator; MoHFW; sets food safety standards, licenses food businesses, enforces through state food safety commissioners; food samples collected by FSSAI food safety officers must be sent to NABL-accredited labs for legally admissible results
Legal admissibility	For enforcement (FIR, prosecution, licence cancellation), food test results must come from NABL-accredited labs; unaccredited lab results can be rejected in court; mobile labs without NABL accreditation produced legally inadmissible results – NABL's new scheme solves this
Food adulteration India	FSSAI surveys find 10-15% of food samples fail safety standards; milk adulteration (detergent, urea), spice adulteration (brick powder,





	artificial colour), edible oil adulteration (non-food oils) are common; mobile lab at mandi can test milk, spices, oil in 30-60 minutes
AGMARK vs NABL	AGMARK: certification mark for agricultural commodities (quality grading); NABL: laboratory accreditation (ensuring test results are reliable); different functions – AGMARK certifies the product, NABL certifies the test method; both are under MoCI ecosystem

Important Points for UPSC:

- One Nation One Food Safety: FSSAI's ONFS mission aims for uniform food safety standards and enforcement across India's 28 states + 8 UTs; mobile NABL-accredited labs address the enforcement gap in rural and semi-urban areas where fixed labs are absent – a direct ONFS enabler
- NABL's existing scope: NABL accredits 8,000+ labs in India (testing, calibration, medical, proficiency testing); all government procurement of testing services requires NABL-accredited labs; NABL accreditation is also required for export certifications (APEDA's agricultural exports require NABL-accredited food safety tests)
- Market size: India has 3,500+ fixed NABL-accredited food labs (2024); mobile labs are a small subset (estimated 200-300 currently operating); with NABL accreditation available, mobile lab numbers expected to grow 5-10x in 3-5 years; potential market for mobile lab operators and vehicle-mounted analytical equipment manufacturers
- Mandi connection: India has 7,000+ APMC mandis + 22,000+ rural haats; mobile NABL food labs can test produce at mandis before sale; farmer gets quality certification at the farm gate rather than after city lab testing; connects to PM GatiShakti's food logistics chain – quality certification as part of the supply chain
- Dairy application: India produces 240 million tonnes of milk annually (world's largest); milk adulteration (water, detergent, urea, skimmed milk powder) is widespread; mobile NABL lab at cooperative collection point tests each farmer's milk submission in real-time – incentivises quality at source
- ISO 17025 adaptation: NABL accreditation is based on ISO/IEC 17025 (international standard for testing and calibration lab competence); the mobile lab scheme required NABL to develop additional criteria for mobile-specific challenges: vibration during transport, temperature control, power supply reliability, on-site calibration verification

AGARWOOD OIL FROM NORTHEAST INDIA — MDONER + CHEMEXCIL EXPORT PUSH

Ministry: Ministry of Development of North-East Region / CHEMEXCIL

PIB Date: 11th August 2026

Easy Explanation



| Click to Connect Now.



Agarwood – also known as oud, agar, or aquilaria – is one of the most valuable wood products in the world. A kilogram of high-quality agarwood essential oil sells for ₹5-15 lakh; agarwood resin-saturated wood chips can sell for ₹50,000-5 lakh per kilogram; and agarwood-based luxury perfumes (Amouage, Clive Christian, Creed) retail for ₹50,000-5 lakh per bottle in global markets. The reason agarwood is so rare and valuable: it forms when Aquilaria trees (a genus of rainforest trees) become infected with a specific mould (*Phialophora parasitica*) and produce a dark, aromatic resin in response to the infection. Wild agarwood trees take 20-50 years to produce resin of commercial quality; they have been over-harvested in wild forests across South and Southeast Asia; Aquilaria is now CITES Appendix II listed (trade regulated internationally). Northeast India – Assam, Meghalaya, Manipur, Tripura, Nagaland – is India's primary Aquilaria-growing region. Both wild and cultivated agarwood trees grow in Northeast India's rainforests; the region has 300+ agarwood cultivation farms under government support. The Ministry of Development of North-East Region (MDoNER) and CHEMEXCIL (Basic Chemicals, Cosmetics and Dyes Export Promotion Council) organised an Industry Summit this week to systematically develop the Northeast's agarwood oil export potential – connecting Northeast farmers and processors to Middle East, East Asia, and European luxury markets where oud is in enormous and growing demand.

Key Terms:

Term	Definition
Agarwood (Aquilaria spp.)	Rainforest tree species; 15 species found in South/Southeast Asia; produces dark aromatic resin when infected by mould; resin-saturated wood = agarwood; agarwood oil (oud oil) = world's most expensive essential oil; wild trees CITES Appendix II (trade regulated)
CITES Appendix II	Convention on International Trade in Endangered Species; Appendix II = species not immediately threatened with extinction but requiring regulated trade to prevent overexploitation; Aquilaria requires CITES export permit; sustainable cultivation is the legal pathway for commercial agarwood trade
MDoNER (Ministry of Development of North-East Region)	Central ministry for Northeast India's development; funds infrastructure, agriculture, tourism, industry in 8 NE states; coordinates Special Accelerated Road Development Programme (SARDP-NE), North East Industrial Development Scheme; agarwood export initiative is part of NE economic integration
CHEMEXCIL (Basic Chemicals, Cosmetics and Dyes Export Promotion Council)	Under MoCI; export promotion council for chemicals, cosmetics, essential oils, dyes, pesticides; facilitates international buyer-seller meets, trade fairs, market intelligence; agarwood oil falls under essential oils – CHEMEXCIL's domain





Oud oil demand	Middle East: oud is a cultural essential (personal perfume, incense, religious use); UAE, Saudi Arabia, Kuwait, Oman are the largest markets; global oud oil market ~\$4 billion/year growing at 10%+ annually; premium synthetic alternatives exist but natural oud commands extreme premium
NE agarwood cultivation	300+ agarwood cultivation farms in Assam, Meghalaya, Tripura, Manipur; government support under NE agriculture schemes; inoculation technology (artificial mould infection to induce resin production in young trees) developed by CSIR-NEIST (North East Institute of Science & Technology, Jorhat)
CSIR-NEIST	North East Institute of Science & Technology, Jorhat, Assam; CSIR laboratory; research on NE biodiversity, medicinal plants, agarwood cultivation, bamboo utilisation; developed inoculation technology for accelerated agarwood resin production – reduces production cycle from 20+ years to 8-12 years

Important Points for UPSC:

- Why CITES matters for trade: To export agarwood from India, exporters need a CITES export certificate (from DGFT), a phytosanitary certificate (NPPO), and an origin certificate confirming the wood is from cultivated (not wild) sources; CHEMEXCIL's summit helps Northeast farmers understand and comply with this documentation requirements for legal export
- Inoculation technology game-changer: CSIR-NEIST's artificial inoculation reduces agarwood production cycle from 20-50 years (wild tree) to 8-12 years (cultivated, inoculated tree); this makes agarwood farming economically viable for the first time at scale; technology transfer to 300+ NE farms is the commercialisation pathway
- Act East Policy economic layer: Act East Policy is primarily known for diplomatic connectivity (ASEAN summits, road connectivity through Myanmar); but its economic layer is exactly this – connecting Northeast India's unique forest products (agarwood, bamboo, medicinal plants) to East Asian and Middle Eastern markets; MDoNER + CHEMEXCIL summit is Act East Policy's agricultural trade dimension
- Per capita income impact: Assam's per capita income is ₹1.25 lakh/year (2024); one agarwood farmer with 100 trees, each producing 100 grams of oil over 10 years, earns ₹50 lakh over 10 years (₹5 lakh/year) from a 0.1 hectare plot – transformative income in a region where rice farming earns ₹50,000-1 lakh per hectare per year
- Competition from Southeast Asia: Agarwood is produced in Malaysia, Indonesia, Vietnam, Cambodia – all with larger established industries; India's competitive advantage is: smaller but premium-quality production,





CSIR-NEIST's inoculation technology, and growing domestic brand recognition (Indian oud); summit connects NE farmers to this competitive context

- Bamboo parallel: Northeast India is also India's largest bamboo-producing region; bamboo products (furniture, flooring, handicrafts) are a similar high-value forest product with large export potential; DONER's forest-based industry export strategy covers both agarwood and bamboo – diversified premium forest economy for the Northeast

NUCLEAR ENERGY ROADMAP — DAE's COMPREHENSIVE PARLIAMENT STATEMENT

Ministry: Department of Atomic Energy

PIB Date: 12th August 2026

Easy Explanation

Dr Jitendra Singh, Minister of State for the Department of Atomic Energy, presented the government's most comprehensive nuclear energy roadmap statement to Lok Sabha in the week of 12th August – a statement that goes beyond the PFBR + SMR update (Week 10) to cover three dimensions often neglected in nuclear policy discussions: medical radioisotopes, radiation in agriculture, and nuclear plant security. On medical radioisotopes: India depends heavily on imported radioisotopes for nuclear medicine – Technetium-99m (Tc-99m, used in 80% of nuclear medicine scans), Lutetium-177 (Lu-177, for cancer therapy), Gallium-68 (Ga-68, for PET scans). The DAE statement confirmed India is advancing toward 'domestic self-sufficiency in critical medical radioisotope supply' – BARC (Bhabha Atomic Research Centre) and BRIT (Board of Radiation and Isotope Technology) are expanding production of Tc-99m and Lu-177 domestically. On radiation in agriculture: DAE-developed radiation technology applications for agriculture include: gamma irradiation for food preservation (extending shelf life of fruits, vegetables, spices without chemicals – critical for export quality), mutation breeding (using radiation to create new plant varieties – India has developed 150+ radiation-induced plant varieties including high-yielding rice, wheat, groundnut), and radiobiology research. On nuclear plant security: Parliament was informed that all 24 Indian nuclear reactors undergo third-party security audits; the Nuclear Power Corporation of India (NPCIL) has cyber security and physical security protocols certified to IAEA's INFCIRC standards.

Key Terms:

Term	Definition
Medical radioisotopes	Radioactive isotopes used in nuclear medicine: diagnosis (Tc-99m for SPECT scans, F-18 for PET, Ga-68 for PET) and therapy (I-131 for thyroid cancer, Lu-177 for neuroendocrine tumours); India imports most Tc-99m from South Africa (NECSA), Netherlands (PALLAS reactor); BARC expanding domestic production





Technetium-99m (Tc-99m)	Most widely used diagnostic radioisotope; used in 80%+ of nuclear medicine scans (bone scans, cardiac scans, lung scans); half-life 6 hours (short – must be produced and used quickly); produced from Molybdenum-99 (Mo-99) in reactors; India's DHRUVA reactor (BARC) can produce Mo-99 → Tc-99m
Lutetium-177 (Lu-177)	Therapeutic radioisotope; Lu-177 DOTATATE is approved for neuroendocrine tumours; Lu-177 PSMA for prostate cancer; produced in research reactors from Lutetium-176; BARC's DHRUVA and CIRUS reactors can produce Lu-177; domestic production would reduce cost from ₹5-8 lakh/dose (import) to ₹1-2 lakh/dose
Radiation mutation breeding	Using gamma radiation or neutron beams to create random mutations in plant DNA; select beneficial mutations (higher yield, disease resistance, drought tolerance); India has developed 150+ radiation-induced crop varieties – BARC's rice variety Trombay varieties are famous; FAO/IAEA's Mutation Breeding database lists 3,350+ varieties worldwide
Gamma irradiation for food	Exposing food to controlled gamma radiation (Co-60 or Cs-137 sources) kills pathogens (bacteria, insects, fungi) without chemicals or heat; extends shelf life; approved by FSSAI; India has 8 gamma irradiation facilities; critical for export quality of fruits (mango, grape) and spices
BRIT (Board of Radiation and Isotope Technology)	DAE entity; produces and markets radioisotopes and radiation products; Tc-99m kits, I-131, P-32, industrial radiation sources, radiation sterilisation services; domestic production capability being expanded under DAE roadmap
Third-party nuclear security audit	IAEA's INFCIRC standards for nuclear plant security; India's 24 reactors (14 PHWRs, 8 BWRs + 2 pressurised LWRs); independent security audits verify physical protection, cyber security, material control; DAE confirmed to Parliament all reactors meet IAEA standards

Important Points for UPSC:

- Medical radioisotope import dependence: Tc-99m's 6-hour half-life means it cannot be stockpiled – daily production from Mo-99 (66-hour half-life) is essential; if BARC's DHRUVA reactor has an unplanned shutdown, India faces a Tc-99m shortage within days; domestic self-sufficiency is a health security imperative, not just economic policy



- Lu-177 cancer therapy: Lu-177 DOTATATE (Lutathera) received USFDA approval 2018 for neuroendocrine tumours; at ₹5-8 lakh/dose (import), it is inaccessible to most Indian patients; BARC's domestic production target of ₹1-2 lakh/dose would make this cancer therapy accessible under PM-JAY – a direct health equity outcome of nuclear technology
- Radiation mutation breeding vs GMO: Radiation mutation breeding (random mutations, traditional plant breeding selection) ≠ GMO (specific gene insertion); both modify plant genetics but through different mechanisms; WTO and most importing countries do not restrict radiation-bred varieties as GMOs; India's 150+ radiation-bred varieties are all conventionally accepted
- NPCIL's expansion: 14 PHWRs (700 MW each) under construction at Gorakhpur (Haryana), Chutka (MP), Bhimpur (MP), Mahi Banswara (Rajasthan), Kovvada (AP, Westinghouse AP1000); when completed, India adds $14 \times 700 \text{ MW} = 9,800 \text{ MW}$ to nuclear capacity – moving toward 100 GW by 2047 target (Week 10 context)
- DAE's DHRUVA reactor: 100 MW research reactor at BARC, Trombay, Mumbai; operational since 1985; used for neutron activation analysis, radioisotope production (Mo-99 , $\text{Lu-176} \rightarrow \text{Lu-177}$), neutron cross-section measurements; and classified research; DHRUVA is India's most versatile nuclear research infrastructure
- India's civil nuclear agreements: USA (123 Agreement, 2008), Russia (VVER reactors, Kudankulam), France (EPR reactors, Jaitapur), Japan (2016), Australia (uranium supply), Canada (CANDU reactors, historical), Kazakhstan (uranium); each agreement covers specific aspects of nuclear commerce – fuel supply, reactor technology, liability; India is now part of the global civil nuclear mainstream

BHARAT TAXI — COOPERATIVE-MODEL MOBILITY PLATFORM, DRIVER-OWNED ALTERNATIVE

Ministry: Ministry of Cooperation

PIB Date: 12th August 2026

Easy Explanation

In most Indian cities, an Ola or Uber driver earns the following: they pay ₹2,000-3,000 per day to rent the car (if they don't own it), pay 20-25% commission to Ola/Uber from every fare, cover fuel costs, bear maintenance costs, and work 14-16 hours to net ₹500-800 after all deductions. The platform company earns the commission, sets the surge pricing algorithm, can deactivate the driver's account unilaterally, and distributes no profits to drivers. This gig economy model has been criticised globally for creating 'platform capitalism' – workers bear all the economic risk (asset ownership, fuel price volatility, vehicle maintenance) while platforms capture most of the value. The Ministry of Cooperation's Bharat Taxi – announced this week – is designed as a cooperative-model alternative: drivers are members-owners of the cooperative; there is no commission (or a minimal administrative fee); surge pricing is regulated by the cooperative committee (not an algorithm); dispute resolution is through the cooperative's grievance mechanism; and net surpluses are shared among driver-members as dividends. The Tribhuvan



| Click to Connect Now.



Cooperative University (TSU, the new cooperative university announced alongside Bharat Taxi) will run training courses for Bharat Taxi's cooperative members in cooperative governance, vehicle maintenance, customer service, and digital literacy. The initial rollout plan is in cities where gig worker cooperative movements already have traction – Ahmedabad, Pune, Bhopal – with a national rollout planned within 2 years.

Key Terms:

Term	Definition
Bharat Taxi	Government-supported cooperative-model ride-hailing platform; driver-members own the cooperative; zero or minimal commission vs Ola/Uber's 20-25%; cooperative governance; surplus sharing; Ministry of Cooperation initiative; initial rollout in Ahmedabad, Pune, Bhopal
Cooperative model	Business owned and controlled by its members; each member has one vote (not proportional to capital); profits distributed as patronage dividends; governed by cooperative principles (Rochdale Principles, 1844); regulated by Multi-State Cooperative Societies Act 2002 or State Cooperative Acts
Gig economy critique	Platforms (Ola, Uber, Swiggy, Zomato) classify workers as 'independent contractors' (not employees) – avoiding EPF, ESIC, minimum wage, and other labour protections; India has 7.7 million gig workers (NITI Aayog 2021 estimate, growing to 23 million by 2030); platform commission erodes already thin margins
PACS (Primary Agricultural Credit Societies)	Village-level cooperative credit societies; 1 lakh+ PACS across India; cooperative infrastructure already at grassroots; Cooperation Ministry is revitalising PACS as multi-purpose cooperatives; Bharat Taxi cooperative structure borrows from PACS governance model
Tribhuvan Cooperative University (TSU)	New cooperative university under Ministry of Cooperation; named after first Deputy PM Sardar Vallabhbhai Patel who championed cooperatives; offers cooperative management, accounting, governance courses; Bharat Taxi cooperative governance training will be delivered through TSU
Platform aggregator regulation	NITI Aayog's 2021 report on gig workers recommended: portable benefits for gig workers, social security ID, minimum earnings guarantee; Code on Social Security 2020 includes provisions for gig workers – but implementation slow; Bharat Taxi addresses the structural problem rather than just regulating the existing platforms



**Amul parallel**

Amul (Gujarat Cooperative Milk Marketing Federation) is the world's largest cooperative by farmer-member count (3.6 million); Amul gives dairy farmers ownership stake + guaranteed procurement price; Bharat Taxi aims to replicate this cooperative success in urban mobility – 'Amul of ride-hailing'

Important Points for UPSC:

- Cooperative vs company: Company = shareholders own it, vote proportional to shares, profit = dividends to shareholders; Cooperative = members own it, one member one vote, profit = patronage dividend proportional to usage; Bharat Taxi driver who drives 200 rides/month gets proportionally more dividend than one who drives 50 – usage-based equity
- Multi-State Cooperative Societies Act 2002 (MSCS Act): Governs cooperatives that operate in more than one state; Bharat Taxi (national rollout) would be registered under MSCS Act; recently amended (2023) to strengthen governance, accountability, and audit requirements for multi-state cooperatives – Bharat Taxi benefits from this reformed framework
- Amit Shah's Cooperation Ministry: Created as a separate ministry in 2021 (earlier under MoAFW); Amit Shah as minister has pushed cooperative sector reform: MSCS Amendment 2023, cooperative export zones, cooperative universities, PACS computerisation (₹2,516 crore scheme); Bharat Taxi is the urban mobility chapter of this cooperative economy push
- International precedents: Eva (Brazil's cooperative taxi platform), CoopCycle (European cooperative bicycle delivery), Green Taxi Cooperative (USA) – cooperative ride-hailing exists globally but has not achieved Ola/Uber scale; Bharat Taxi has government support (unlike purely market-driven cooperatives) which may enable scale
- Driver economics: Bharat Taxi's success depends on attracting drivers away from Ola/Uber; key incentive: zero commission (vs 20-25%); driver on ₹1,000/day gross earns ₹750-800 on Bharat Taxi vs ₹750-800 on Ola/Uber after commission; advantage = cooperative dividend + cooperative asset ownership + job security (can't be deactivated algorithmically)
- App development: Bharat Taxi needs a competitive app with real-time GPS, payment integration, driver rating, ride tracking; Ministry of Cooperation is reportedly engaging NIC (National Informatics Centre) and potentially a private tech partner for the app; technology, not governance, may be the execution bottleneck

PIB BACKGROUNDER — CPGRAMS: DIGITAL GRIEVANCE REDRESS AT SCALE

Ministry: Ministry of Personnel, Public Grievances & Pensions / DARPG

PIB Date: 9th August 2026



| Click to Connect Now.



Easy Explanation

CPGRAMS – Centralised Public Grievance Redress and Monitoring System – is India's unified digital platform for citizen grievances against central government ministries and departments. Launched in 2007, it has processed 2.5 crore+ grievances to date and currently handles approximately 25-30 lakh new grievances annually. The PIB Backgrounder released this week documents CPGRAMS's transformation from a static complaint box into a dynamic, AI-powered governance tool. The current CPGRAMS 2.0 architecture: a citizen files a grievance on the CPGRAMS portal (or via phone, or via common service centres); the grievance is auto-categorised by AI into one of 84 subject categories; routed automatically to the concerned ministry/department; the ministry must provide a substantive reply within 30 days (or 60 days for complex cases); the citizen can rate the resolution (1-5 star); and unresolved or poorly rated grievances are automatically escalated to senior officials. The 30-day resolution timeline has improved from an average of 45 days (2019) to 19 days (2026). The Backgrounder's headline data: 70%+ of grievances are now resolved within 30 days; AI-based grievance categorisation has reduced misrouting (grievances sent to wrong department) by 60%; and a 'Grievance Analytics Dashboard' allows senior officials to identify systemic problems – if 5,000 grievances all mention 'PAN card delay', it signals a processing bottleneck at NSDL, not just individual cases.

Key Terms:

Term	Definition
CPGRAMS	Centralised Public Grievance Redress and Monitoring System; DARPG; web portal + mobile app; central government grievances; 2.5 crore+ grievances processed since 2007; AI-powered categorisation and routing; 30-day resolution target; citizen feedback loop
DARPG (Department of Administrative Reforms and Public Grievances)	MoPP&P department; administrative reform in central government; manages CPGRAMS; publishes annual citizen's charter compliance reports; coordinates with all ministries on grievance quality
30-day resolution target	Citizens must receive substantive resolution within 30 days (60 for complex); 19-day average resolution time (2026, vs 45 days in 2019); performance indicator tracked through CPGRAMS dashboard; secretaries and ministers review monthly
Grievance Analytics	CPGRAMS 2.0 feature; aggregates thousands of similar grievances into systemic insights; identifies patterns – 'PAN card delay' from 5,000 grievances = NSDL bottleneck; 'Aadhaar linking failure' from 3,000 = UIDAI process issue; turns individual complaints into policy intelligence





AI categorisation	NLP-based AI classifies incoming grievances into 84 subject categories; routes to correct ministry automatically; reduces human misrouting error; 60% reduction in misrouting since AI implementation; each correctly routed grievance = faster resolution
PM's emphasis on grievance redress	PM Modi has repeatedly cited CPGRAMS as a governance accountability tool; reviews CPGRAMS data at PMO level; secretaries whose ministries have high pendency or low citizen satisfaction ratings face scrutiny; CPGRAMS has become a performance management tool for the bureaucracy
State CPGRAMS integration	Several states (UP, Haryana, Rajasthan, MP) have integrated their own state grievance portals with CPGRAMS; a citizen filing a state-government grievance on the central portal gets routed to state system; one-stop grievance filing nationally

Important Points for UPSC:

- **Citizen's Charter + CPGRAMS:** Every central government department has a Citizen's Charter specifying service timelines; CPGRAMS grievances filed when these timelines are violated; CPGRAMS data + Citizen's Charter = accountability mechanism; DARPG's annual report on Citizen's Charter compliance is a governance transparency document
- **CPGRAMS vs RTI:** RTI (Right to Information Act 2005) enables citizens to demand information from government; CPGRAMS enables citizens to file complaints against government service failures; both are citizens' accountability mechanisms but different in nature – RTI is information, CPGRAMS is redress
- **Feedback loop importance:** Citizens rate their CPGRAMS resolution (1-5 stars); low-rated resolutions trigger re-examination by senior officials; without feedback, government could give token 'resolved' replies; feedback system ensures quality of resolution, not just speed – a critical design feature
- **2.5 crore grievances processed:** Most common grievance categories: pension (retired government employees), insurance (postal life insurance, CGHS), passport, PAN card, income tax, railway ticketing, EPFO, Aadhaar; knowing these categories helps understand where government service delivery fails most frequently
- **International comparison:** UK's Parliamentary Ombudsman, South Korea's Anti-Corruption and Civil Rights Commission, Singapore's VITAL – all have centralised grievance systems; India's CPGRAMS is one of the largest by volume; the AI categorisation and analytics approach is relatively advanced by global standards

PIB BACKGROUNDER — SHIP RECYCLING IN INDIA: REGULATORY TRANSFORMATION AND GLOBAL LEADERSHIP



| Click to Connect Now.



Ministry: Ministry of Ports, Shipping and Waterways

PIB Date: 11th August 2026

Easy Explanation

At Alang in Bhavnagar district, Gujarat, runs the world's largest ship-breaking yard – a 10 km stretch of tidal beach where end-of-life ships from around the world are driven aground at high tide and dismantled by 15,000-20,000 workers who strip every ounce of metal, machinery, and equipment for recycling. Alang handles 25-30% of global ship recycling by weight. It has historically been controversial: workers cutting through asbestos insulation, lead paint, and polychlorinated biphenyl (PCB)-coated cables without adequate protection; ship hulls containing oil sludge and toxic materials discharged directly onto the beach; and working conditions that drew sharp criticism from international labour and environmental organisations. In 2019, India ratified the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (Hong Kong Convention, IMO, 2009). This PIB Backgrounder documents the transformation that followed: ship recycling facilities at Alang have been upgraded to Statement of Compliance (SoC) status under the Hong Kong Convention – meaning hazardous material inventories are maintained, workers are provided PPE and health monitoring, effluents are treated before discharge, and asbestos-containing materials are handled under controlled conditions. The result: Alang has emerged from environmental and labour controversy into compliance with international standards – without losing its competitive cost advantage. The steel recovered from recycled ships (called 'ship steel' or 'rerolled steel') provides 2-3 million tonnes of secondary steel annually to India's steel industry – a significant circular economy input.

Key Terms:

Term	Definition
Alang, Bhavnagar (Gujarat)	World's largest ship recycling facility; 10 km tidal beach; 100+ recycling plots; 15,000-20,000 workers; handles 25-30% global ship recycling by weight; provides 2-3 million tonnes secondary steel/year to India's steel industry
Hong Kong Convention (2009)	IMO's international convention for safe and environmentally sound ship recycling; requires ships to carry Inventory of Hazardous Materials (IHM); recycling facilities to meet SoC standards; India ratified 2019; convention entered into force globally (with sufficient ratification) in process
Statement of Compliance (SoC)	Certification under Hong Kong Convention that a ship recycling facility meets required standards; Alang yards progressively obtaining SoC; European-flagged ships must go to SoC-certified facilities – Alang's SoC certification opens European ship recycling market



| Click to Connect Now.



Hazardous Material Inventory (IHM)	Document listing all hazardous materials (asbestos, lead, PCBs, tributyltin, ozone-depleting substances) on a ship; required for all ships built after Convention entry-into-force; facilitates safe handling during recycling
Secondary steel from ship recycling	Ships are 80-90% steel by weight; recycled ship steel = 'scrap' for Indian steel re-rolling mills; Alang ships provide 2-3 million tonnes/year; secondary steel is energy-efficient vs virgin steel (electric arc furnace vs blast furnace); circular economy, lower carbon footprint
EU Ship Recycling Regulation (EUSRR)	EU regulation requiring EU-flagged ships to be recycled only at approved facilities; European List of Approved Ship Recycling Facilities; Alang yards on European List (after SoC compliance) = European fleet owners can legally send ships to Alang – opens premium market
Bangladesh/Pakistan competition	Bangladesh (Chittagong) and Pakistan (Gadani) are Alang's main competitors; lower labour costs but less regulatory compliance; Hong Kong Convention gives Alang a quality advantage – regulatory arbitrage in favour of Indian ship recycling with international compliance

Important Points for UPSC:

- Circular economy significance: 2-3 million tonnes/year of ship steel recycled at Alang = equivalent to 15% of India's steel scrap supply; secondary/recycled steel requires 60-70% less energy to produce than virgin steel; Alang is one of India's largest circular economy operations – steel without ore mining
- Worker welfare transformation: Pre-2019: no PPE, no health monitoring, no asbestos protocol, direct beach discharge; Post-Hong Kong Convention SoC: mandatory PPE, occupational health centres at Alang, HAZMAD (Hazardous Material) handling training, enclosed cutting for asbestos, effluent treatment plants; transformation is real but enforcement requires continued monitoring
- IMO's shipping decarbonisation: IMO set 2050 net-zero target for shipping; ship recycling's role: old fossil-fuel ships removed from fleet early → new LNG, methanol, ammonia-powered vessels replace them; faster ship recycling (incentivised through Hong Kong Convention compliance and EU market access) accelerates fleet renewal
- India as ship recycling exporter of knowledge: Alang's transformation from controversy to compliance is being studied by Pakistan (Gadani) and Bangladesh (Chittagong) – India can export the regulatory framework, training programmes, and environmental protocols; ship recycling governance as a maritime sector soft power





- **Container Manufacturing + Ship Recycling synergy:** This week's Container Manufacturing Assistance Scheme (next Backgrounder) and Ship Recycling are complementary maritime industry pillars – India recycling old ships for steel, and using new steel to build shipping containers; closed-loop maritime industrial policy

PIB BACKGROUNDER — CONTAINER MANUFACTURING ASSISTANCE SCHEME: INDIA'S MARITIME FUTURE

Ministry: Ministry of Ports, Shipping and Waterways

PIB Date: 11th August 2026

Easy Explanation

Here is a fact that most people find surprising: India, one of the world's largest trading nations with 7,517 km of coastline and \$800 billion in annual trade, imports approximately 95% of its shipping containers from China. A standard 20-foot TEU (Twenty-foot Equivalent Unit) container – the box that carries almost everything traded globally – is manufactured almost exclusively by Chinese companies (CIMC, Singamas, CXIC) at Chinese factories. India has no significant domestic container manufacturing industry. The consequences: every global shipping container shortage (like COVID-19's severe shortage in 2020-21) hits India harder because it cannot produce its own; container prices that quadrupled during COVID (from \$2,000 to \$8,000-12,000 per TEU) meant Indian exporters paid extraordinary premiums; and India has no strategic reserve or domestic production buffer for container supply chain shocks. The Container Manufacturing Assistance Scheme, announced in the PIB Backgrounder this week, provides financial assistance to set up container manufacturing plants in India – targeting 2 lakh TEU capacity domestically per year by 2030 (India currently uses 3-4 lakh TEU/year, so domestic production would cover 50-65% of demand). The scheme includes: capital subsidy for setting up manufacturing units (greenfield plants); viability gap funding for the first 3 years (when domestic containers may be slightly more expensive than Chinese containers); and preferential purchase requirements for Indian ports and shipping lines to source a defined percentage of containers from domestic manufacturers.

Key Terms:

Term	Definition
TEU (Twenty-foot Equivalent Unit)	Standard unit of container measurement; standard shipping container = 1 TEU (20 feet long) or 2 TEU (40 feet long = FEU); India uses 3-4 lakh TEU/year; CIMC (China) alone manufactures 1 million TEU/year – scale dominance
CIMC (China International Marine Containers)	World's largest container manufacturer; produces ~50% of global shipping containers; Shenzhen-based; COVID-19 shortage exposed India's total dependence on CIMC and similar Chinese manufacturers



| Click to Connect Now.



Container Manufacturing Assistance Scheme	MoPSW financial support for domestic container plants; capital subsidy for greenfield; viability gap funding (3 years); preferential purchase mandate for Indian ports and shipping lines; target: 2 lakh TEU domestic capacity by 2030
COVID-19 container shortage lesson	2020-21: global container shortage due to China's factory shutdowns, demand surge, port congestion; TEU rental rates: \$2,000 (pre-COVID) → \$8,000-12,000 (peak COVID); Indian exporters (textiles, pharma, agriculture) severely impacted; container supply security = trade security
Corten steel requirement	Shipping containers made from Corten steel (weathering steel) – forms a protective rust layer that prevents further corrosion; India produces Corten steel (SAIL, Tata Steel); domestic Corten steel + domestic container manufacturing = full supply chain indigenisation; connects to India's steel sector
E-Samudra integration	Container manufacturing + E-Samudra (Art 7 this week): containers manufactured in India tracked through E-Samudra's Port Community System; digital chain from manufacture to loading to export – India's maritime digital transformation covers both physical infrastructure and digital governance
Logistics Data Bank	India's container tracking system (on 14th Aug, DB tracks 10 crore EXIM containers); domestic container manufacturing + Logistics Data Bank = India tracking its own containers from manufacture to destination – end-to-end supply chain visibility and sovereignty

Important Points for UPSC:

- Strategic autonomy: Container manufacturing is not just an economic issue – it is a strategic vulnerability; if China restricts container supply (as it restricted rare earth exports to Japan in 2010), India's trade would be severely disrupted; domestic container manufacturing is a supply chain security measure analogous to semiconductor manufacturing (chip dependency from China/Taiwan)
- Circular economy link: Ship recycling at Alang (previous Backgrounder) provides Corten steel – the raw material for container manufacturing; ship steel recycled at Alang → container steel for new manufacturing → containers used for India's exports → old containers recycled back at Alang; a genuinely circular maritime materials economy
- Port infrastructure readiness: India's major ports need container stacking infrastructure (reach stackers, RTG cranes) and container freight stations; Sagarmala programme has upgraded port infrastructure; JNPT





(Nhava Sheva) and Mundra are India's largest container ports; domestic container availability reduces their import-container sourcing cost

- Viability gap funding rationale: Chinese containers are cheaper because: massive scale (1 million TEU/year vs India's greenfield 2 lakh TEU/year), lower labour costs in China, and subsidies; India's viability gap funding bridges the cost gap for the first 3 years while Indian manufacturers achieve scale and efficiency; standard industrial policy tool
- EXIM container volume: India's EXIM trade moves 9-10 million TEU/year (2024-25); domestic manufacturing at 2 lakh TEU/year = 2% of annual demand – still heavily import-dependent, but a start that creates the industrial base for further scale-up; the Logistics Data Bank's 10 crore EXIM container milestone (14th Aug) provides the demand data that justifies this investment

PIB BACKGROUNDER — MSME DEVELOPMENT (AMENDMENT) BILL 2026

Ministry: Ministry of MSME

PIB Date: 11th August 2026

Easy Explanation

The MSME Development (Amendment) Bill 2026, passed by both Houses of Parliament in the Monsoon Session 2026, amends the Micro, Small and Medium Enterprises Development Act 2006 – the foundational legislation defining what qualifies as an MSME and governing their regulatory treatment. We deliberately excluded this from Week 10's brief (it was still a bill then – now it's been passed by Parliament and awaits Presidential assent to become law). The most significant change: upward revision of MSME classification thresholds. India currently classifies MSMEs on investment in plant and machinery (for manufacturing) and investment in equipment (for services), combined with annual turnover. The 2020 revision (during COVID) significantly raised these thresholds; the 2026 Amendment raises them further to account for inflation and genuine business growth. The revised thresholds (indicative from PIB): Micro – investment up to ₹5 crore + turnover up to ₹25 crore (from ₹2.5 crore investment + ₹10 crore turnover); Small – investment up to ₹25 crore + turnover up to ₹100 crore; Medium – investment up to ₹125 crore + turnover up to ₹500 crore. The amendment also strengthens the ZED (Zero Defect Zero Effect) certification framework – a quality and environmental certification for MSMEs – and improves the Delayed Payment provisions (Section 15-17 of MSED Act): buyers must pay MSME suppliers within 45 days; MSME Samadhaan (delayed payment monitoring portal) gets statutory backing.

Key Terms:

Term	Definition
MSMED Act 2006	Micro, Small and Medium Enterprises Development Act; defines MSME classification; provides for MSME credit priority (bank lending), delayed payment protection, procurement preference (25%



| Click to Connect Now.



	of central government procurement from MSMEs), and regulatory exemptions
Revised MSME thresholds (2026 Amendment)	Micro: investment $\leq$ ₹5 crore + turnover $\leq$ ₹25 crore; Small: investment $\leq$ ₹25 crore + turnover $\leq$ ₹100 crore; Medium: investment $\leq$ ₹125 crore + turnover $\leq$ ₹500 crore; higher thresholds = more businesses qualify = more benefit access
ZED (Zero Defect Zero Effect)	Quality certification for MSMEs: Zero Defect (product quality) + Zero Effect (environmental impact); helps MSMEs access export markets (buyers require quality standards); government subsidises ZED certification costs; Amendment strengthens ZED's statutory basis
Delayed payment (45-day rule)	MSED Act Section 15-17: buyers must pay MSME suppliers within 45 days of delivery; failure = interest at 3x bank rate; MSME Samadhaan portal tracks delayed payments; major problem – large buyers delay MSME payments, straining MSME cash flow; 2026 Amendment strengthens enforcement
MSME Samadhaan	Online delayed payment monitoring portal; MSME suppliers file complaints; buyer company must respond; cases escalate to MSME Facilitation Councils (state-level); data shows ₹45,000+ crore delayed payments filed – endemic problem that Amendment aims to address
25% procurement preference	Central government departments must source 25% of their procurement from MSMEs (of which 3% from SC/ST-owned MSMEs, 3% from women-owned MSMEs); GeM (Government e-Marketplace) is the implementation platform; MSME Amendment does not change this percentage but strengthens the definition of qualifying MSMEs
ECLGS (Emergency Credit Line Guarantee Scheme)	COVID-era credit support for MSMEs; government guarantees loans from banks to MSMEs; ₹5 lakh crore sanctioned, ₹3.7 lakh crore disbursed; ECLGS 5.0 (this week, Week 10 context) extends the scheme; revised MSME thresholds mean more businesses qualify for ECLGS

Important Points for UPSC:

- 6 crore MSMEs: India has 6 crore+ registered MSMEs employing 11 crore+ workers – the largest private sector employer after agriculture; they contribute 30% of GDP and 45% of exports; MSME definition





revision directly expands the pool of businesses that qualify for credit priority, procurement preference, and regulatory exemptions

- **Threshold inflation adjustment:** Original MSMED Act 2006 thresholds were ₹25 lakh (Micro manufacturing); 2020 revision raised to ₹1 crore investment + ₹5 crore turnover (Micro); 2026 Amendment raises to ₹5 crore + ₹25 crore; inflation between 2006 and 2026 means the real value of original thresholds has fallen – periodic revision is economically rational
- **Delayed payment:** ₹45,000+ crore in delayed payment complaints on MSME Samadhaan (2024); the 45-day rule has not been effectively enforced because large corporations (buyers) have more negotiating power; 2026 Amendment's strengthened provisions include: mandatory declaration of MSME payments in annual report, SEBI disclosure requirement for listed companies – making delayed payment a reputational issue for large corporates
- **ZED + exports:** India's major export partners (EU, USA) require quality certifications (ISO 9001, product-specific certifications); ZED certification is India's national quality certification aligned with these international standards; 2026 Amendment making ZED statutory means ZED-certified MSMEs get a legal quality mark – not just a government badge
- **UPSC definition question:** 'Micro enterprise' definition is a classic UPSC 1-mark question; the 2026 Amendment changes the answer – always quote the most recent definition; Micro: investment ≤ ₹5 crore + turnover ≤ ₹25 crore (as per 2026 Amendment once Presidential assent received)

PIB BACKGROUNDER — PAIMANA: STRENGTHENING DATA-DRIVEN INFRASTRUCTURE GOVERNANCE

Ministry: Ministry of Statistics & Programme Implementation / MoSPI

PIB Date: 10th August 2026

Easy Explanation

PAIMANA – Performance-based Assessment and Integrated Monitoring for Accountability in National Assets – is MoSPI's new framework for data-driven monitoring and evaluation of India's infrastructure governance. The name draws from the Sanskrit/Urdu word 'paimana' (scale/measure), signalling the framework's intent: to measure infrastructure accurately, comprehensively, and as a basis for accountability. India is in the midst of an infrastructure buildout of historic scale: ₹11 lakh crore annual capital expenditure in the Union Budget, PM GatiShakti's national master plan for infrastructure coordination, and the National Infrastructure Pipeline (NIP) targeting ₹111 lakh crore in infrastructure investment by 2030. Yet infrastructure governance has a persistent problem: project data is fragmented across ministries (road data with MoRTH, railway with MoR, port with MoPSW, power with MoP), timelines are routinely overrun, cost escalation is endemic, and there is no single dashboard where a policymaker can see the real-time status of all national infrastructure projects. PAIMANA addresses this through three components: a unified National Infrastructure Database (integrating project data from all 18 infrastructure ministries into a single, standardised format); a PERT/CPM-based project timeline monitoring



| Click to Connect Now.



system (tracking project milestones against critical path, flagging delays before they cascade); and a Performance Index for each infrastructure ministry (combining: project completion rate, cost escalation ratio, quality of assets created, and economic return on infrastructure investment). PM GatiShakti's geospatial layer provides the spatial data that anchors PAIMANA's project tracking.

Key Terms:

Term	Definition
PAIMANA	Performance-based Assessment and Integrated Monitoring for Accountability in National Assets; MoSPI framework; unified infrastructure database + PERT/CPM project monitoring + ministry performance index; integrates 18 infrastructure ministries' project data
PM GatiShakti	National Master Plan for Multi-Modal Connectivity; launched October 2021; geospatial platform mapping India's infrastructure (roads, railways, ports, airports, waterways, power, gas pipelines) for integrated planning and project clearances; PAIMANA builds on GatiShakti's data layer
National Infrastructure Pipeline (NIP)	₹111 lakh crore infrastructure investment target by FY2030; covers roads, railways, urban infrastructure, power, water, digital; originally announced in Budget 2020; PAIMANA monitors NIP projects' implementation status – closing the gap between the plan and execution
PERT/CPM (Project Evaluation Review Technique / Critical Path Method)	Project management methods; PERT: identifies critical path (sequence of tasks determining minimum project duration); CPM: monitors actual vs planned milestone completion; PAIMANA applies PERT/CPM to national infrastructure projects – if a critical path task delays, PAIMANA flags the cascade impact on completion date
Cost escalation problem	India's infrastructure projects routinely overrun: Delhi Metro Phase 1 cost overrun 65%; Bogibeel Bridge (Assam) overrun 300%; USBRL (Week 10) overrun 10x; causes: geological surprises, land acquisition delays, design changes, contractor failures; PAIMANA's real-time monitoring aims to catch overrun causes early
18 infrastructure ministries	Roads (MoRTH), Railways (MoR), Ports (MoPSW), Civil Aviation (MoCA), Power (MoP), Petroleum (MoPNG), Coal (MoC), Water (MoJS), Telecom (MoC&IT), Urban (MoHUA), Housing (MoHFA), Agriculture (MoAFW), Defence infrastructure (MoD), MSME





	(MoMSME), Skill (MSDE), Health infrastructure (MoHFW), Education (MoE), Tourism (MoT)
MoSPI's statistical authority	Ministry of Statistics and Programme Implementation; publishes GDP data, CPI, IIP, PLFS; also monitors Central Sector Schemes' implementation; PAIMANA extends MoSPI's statistical authority to infrastructure monitoring – independent (not self-reported) data on project status across all ministries

Important Points for UPSC:

- GatiShakti + PAIMANA = complete infrastructure governance loop: GatiShakti plans and coordinates infrastructure (what to build, where, in what sequence); PAIMANA monitors and evaluates (is it being built on time, on budget, to quality); together they address both the planning fragmentation and the execution monitoring gaps in India's infrastructure governance
- Rs 11 lakh crore capex context: Union Budget FY2026-27 allocated ₹11 lakh crore capital expenditure (1.4% higher than 2025-26's record ₹10 lakh crore); plus ₹1.5 lakh crore grant to states for capital expenditure; total ₹12.5 lakh crore government infrastructure spending; PAIMANA's unified database must track this scale of expenditure across all ministries
- MoSPI's independent monitoring role: PAIMANA's credibility depends on MoSPI being independent of the infrastructure ministries it monitors; MoSPI publishes unflattering data (GDP downward revisions, inflation peaks) – it has institutional capacity for independent assessment; this independence is what distinguishes PAIMANA from self-reported ministry project status reports
- Performance Index for ministries: PAIMANA assigns each of the 18 infrastructure ministries a quarterly performance score; published publicly; creates competitive pressure among ministries (Ministry of Roads vs Ministry of Railways on project completion rate); ministers' accountability to Parliament enhanced by objective, comparable data
- Digital twin potential: PAIMANA's geospatial + project data combined with BIM (Building Information Modelling) data from large infrastructure projects could create digital twins of national infrastructure – virtual models that predict maintenance needs, failure points, and upgrade requirements; the next evolution of infrastructure governance beyond monitoring to predictive management
- Fourth-generation governance: First-generation: physical file-based governance; Second: computerised records; Third: online dashboards (PRAGATI – PM's review platform for infrastructure projects, since 2015); Fourth: AI-powered, integrated, predictive governance (PAIMANA) – each generation makes governance faster, more accurate, and more accountable





HONORARY MENTIONS

Facts that didn't make the article cut – but are exactly the kind of one-liners UPSC drops in a statement-based question.

Topic	Key Fact	UPSC Angle
RailOne App	Indian Railways' unified app reached 4.76 crore downloads; records 10 lakh daily average ticket bookings; integrates PNR status, platform ticket, unreserved ticketing, complaints – single-app railway experience.	GS-II governance; Digital India in railways; RailOne is Indian Railways' answer to fragmented app ecosystem (IRCTC, UTS, Rail Madad previously separate).
Vande Mataram 150 years	Independence Day 2026 theme: '150 Years of Vande Mataram'; composed by Bankim Chandra Chattopadhyay in 1876; first published in novel Anandamath (1882); adopted as National Song (not National Anthem); sung at 1896 INC session first time.	GS-I modern history; Vande Mataram vs Jana Gana Mana distinction (National Song vs National Anthem) is classic UPSC trap; Anandamath novel, Bankim Chandra – directly testable.
PMAY-Urban milestone	Pradhan Mantri Awas Yojana – Urban: 1.25 crore houses sanctioned, 1 crore houses delivered as of August 2026; launched 2015; target: Housing for All by 2022 (extended); beneficiaries include EWS, LIG, MIG categories.	GS-II governance + social justice; PMAY-U components: CLSS (Credit Linked Subsidy), AHP (Affordable Housing in Partnership), BLC (Beneficiary-Led Construction), ISSR (In-Situ Slum Redevelopment) – all directly testable.
Kavach Version 4.0	Indian Railways approved Kavach V4.0 on 660 route km of Izzatnagar Division, NE Railway at ₹295 crore; Kavach = automatic train protection system; prevents collisions by auto-braking; SIL-4 safety certified (highest level).	GS-III infrastructure; Kavach background: developed by RDSO + 3 Indian companies; mandated after Odisha triple train crash (2023); SIL-4 certification significance; V4.0 adds better GPS integration and higher speed capability.
DISCOMS digitalisation	Ministry of Power's framework for DISCOM (electricity distribution company) digitalisation: smart meters,	GS-III energy; AT&C losses are India's biggest power sector problem (currently 17-20%); RDSS





Topic	Key Fact	UPSC Angle
	prepaid connections, automated billing, real-time grid monitoring; AT&C (Aggregate Technical and Commercial) losses targeted at <12% by 2027.	(Revamped Distribution Sector Scheme, ₹3 lakh crore) is the main scheme; DISCOM digitalisation is RDSS's technology layer.
SMILE Scheme – 2,824 children rescued	2,824 children identified, rescued and rehabilitated under SMILE (Support for Marginalised Individuals for Livelihood and Enterprise) scheme; also covers persons engaged in begging; Ministry of Social Justice.	GS-II social justice; SMILE covers two groups: persons in begging (sub-scheme SMILE-Beggary) and transgender persons; rehabilitation, skill training, identity documents; connects to Transgender Persons (Protection of Rights) Act 2019.
Safety fencing – 19,700 km	Indian Railways approved safety fencing along 19,700 km of tracks to prevent trespassing; 25,000+ trespassing deaths on railway tracks annually (largest cause of railway fatalities); reinforced concrete fencing + solar-powered lights.	GS-III infrastructure; 25,000 trespassing deaths/year vs ~100 in-train collision deaths/year – trespassing is India's biggest railway safety problem; safety fencing is the infrastructure solution.
Fit India – 85th edition	Sports Minister Mansukh Mandaviya led 85th edition of Fit India Sundays on Cycle from Hanol, Gujarat; with youth, MyBharat, NSS volunteers; Nasha Mukht Bharat as theme; Fit India Movement launched 29th August 2019 (National Sports Day).	GS-II governance; National Sports Day = birthday of Major Dhyan Chand (29th August); Fit India Movement; MyBharat platform (2.46 crore youth registered) – connecting India's fitness programme to youth platforms.
NCLT e-services	National Company Law Tribunal (NCLT) launched e-Inspection and e-Certified Copy services; litigants can view case records and obtain certified copies online; reduces physical visits to NCLT; part of digital courts initiative.	GS-II governance; NCLT established under Companies Act 2013; handles: insolvency (IBC 2016), company mergers, oppression and mismanagement; 15 benches across India; e-services extend eCourts initiative to corporate law tribunals.





Topic	Key Fact	UPSC Angle
V.V. Giri birth anniversary	President of India paid tributes to Varahagiri Venkata Giri (VV Giri) on his birth anniversary (10th August); 4th President of India (1969-1974); resigned as Acting President to contest Presidential election as independent; Congress supported him over its official candidate – 'conscience vote' controversy.	GS-I modern history; VV Giri – first President to win as independent candidate; Indira Gandhi used VV Giri's presidential election (1969) to split Congress and consolidate power; 'conscience vote' episode is directly testable.
India-Kenya parliamentary ties	Lok Sabha Speaker Om Birla met Kenyan parliamentary delegation; India-Kenya relations described as going back millennia; Kenya is one of India's largest African trade partners; Indian diaspora in Kenya (100,000+) is influential.	GS-II international relations; India-Africa engagement; Kenya hosts largest Indian diaspora in East Africa; India-Kenya bilateral covers: infrastructure (SGR railway India's Line of Credit), pharma, education; Kenya is also in AfCFTA (54 nations).
Sangeet Natak Akademi Awards 2024-25	President Murmu conferred Sangeet Natak Akademi Fellowships (Akademi Ratna) and Awards (Akademi Puraskar) for 2024 and 2025; SAA is India's apex body for performing arts; under Ministry of Culture; Akademi Ratna is the highest fellowship.	GS-I art and culture; Three Akademis: Sangeet Natak (performing arts), Sahitya (literature), Lalit Kala (visual arts); all under Ministry of Culture; Awards given annually; Akademi Ratna = lifetime achievement; know the three Akademis and their domains.
Kala Namak rice	Parliament Question on Kala Namak rice cultivation in UP; GI-tagged heritage rice variety from Siddharth Nagar, UP; aromatic, low glycaemic index, associated with Buddha's birthplace region; PM Modi has promoted it internationally.	GS-I geography/culture; Kala Namak = 'black salt rice' (named for black husk, not for salt content); GI tag from Uttar Pradesh; connects to GI tags (Week 10 Backgrounder) and UP's agricultural heritage; UPSC has asked about GI-tagged rice varieties.
BioE3 Policy	Parliament Question on environmental outcomes of BioE3 (Biotechnology for Economy, Environment and	GS-III science; BioE3 Policy is India's bioeconomy policy framework; biomanufacturing (using biology to





Topic	Key Fact	UPSC Angle
	Employment) Policy; approved 2024; promotes high-performance biomanufacturing; India's bioeconomy target: \$300 billion by 2030.	make products currently made from fossil fuels: plastics, chemicals, fuels); \$300 billion bioeconomy target by 2030 is a key data point.
Mission Karmayogi	Parliament Question on iGOT Mission Karmayogi implementation in West Bengal; iGOT = Integrated Government Online Training; Mission Karmayogi is civil services capacity-building reform; online learning for government employees; ₹510 crore outlay.	GS-II governance; Mission Karmayogi (2020) is the landmark civil services reform: competency framework for IAS/IPS, online learning through iGOT Karmayogi platform, role-based transfer policy; connects to Administrative Reforms Commission recommendations.
Rare Earth Permanent Magnets scheme	Ministry of Heavy Industries received 20 bids under Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets (REPM); NdFeB and SmCo magnets; used in EV motors, wind turbines, defence; India imports 95% from China.	GS-III economy/science; REPM are on India's Critical Minerals list; NdFeB = Neodymium-Iron-Boron (strongest permanent magnet); SmCo = Samarium-Cobalt (high temperature performance); understanding what REPMs are made from and where they're used is UPSC-relevant.
PLFS — Quarterly Bulletin	PLFS (Periodic Labour Force Survey) Quarterly Bulletin for April-June 2026 released; PLFS introduced methodological improvement: rotational panel sampling design for urban areas (replaces earlier EUS methodology); tracks employment, unemployment, wages.	GS-III economy; PLFS replaced Employment-Unemployment Survey (EUS) in 2017-18; measures Labour Force Participation Rate (LFPR), Worker Population Ratio (WPR), Unemployment Rate (UR); LFPR is the fraction of population that is employed or actively looking for work.
NBA — ₹3.79 crore ABS to states	NBA (National Biodiversity Authority) disbursed ₹3.79 crore under Access and Benefit Sharing (ABS) mechanism to 33 States/UTs and National Institutes (separate from ₹15.52 crore	GS-III environment; Two ABS payments this week: ₹15.52 crore (mustard genetic resources) + ₹3.79 crore (general biological resources) = both are Nagoya Protocol +





Topic	Key Fact	UPSC Angle
	mustard ABS in main article); multiple biological resources contributing to ABS fund.	Biological Diversity Act 2002 implementation; NBA distributes to states proportionally to resource contribution.
3 Sanchar Mitras — ITU Youth Envoys	Three Indian telecom professionals (Sanchar Mitras) selected as ITU Generation Connect Youth Envoys for 2026-2030; ITU = International Telecommunication Union (UN agency for ICT); youth envoys represent next generation of telecom leaders in ITU governance.	GS-II international relations; ITU governs global radio spectrum allocation, satellite orbits, telecom standards; India is ITU Council member; ITU's Generation Connect is youth engagement programme; connecting India's telecom talent to global ICT governance.
Cumulative exports \$316.42 billion	India's merchandise + services exports for April-July 2026-27: \$316.42 billion; 13.16% growth over April-July 2025-26 (\$279.63 billion); merchandise ~\$141 billion + services ~\$175 billion; on track for \$950-1,000 billion full-year record.	GS-III economy; India's export target: \$2 trillion by 2030 (merchandise \$1 trillion + services \$1 trillion); current trajectory: 13% growth rate needed to reach this; key data point for UPSC essay on India's trade ambitions.





PRACTICE QUESTIONS

10 PRELIMS QUESTIONS — UPSC PRELIMS STYLE

Q1. India achieved 300 GW of non-fossil fuel installed power capacity in August 2026. Consider the following:

1. This figure refers to installed capacity, not actual electricity generation — fossil fuels still dominate India's electricity generation mix.
2. India's NDC commitment is to achieve 50% of cumulative electric power installed capacity from non-fossil sources by 2030.
3. Solar energy alone contributed over 100 GW to this milestone, making it the single largest non-fossil contributor.
4. The 300 GW milestone makes India the world's largest renewable energy capacity holder.

How many of the above statements are correct?

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

Q2. The Asiatic Lion population rose from 523 (2015) to 891 (2025). Which of the following statements about the Asiatic Lion is/are correct?

1. It is found only in Gir National Park and Wildlife Sanctuary in Gujarat.
2. It is listed as 'Vulnerable' on the IUCN Red List.
3. It is protected under Schedule I of the Wildlife Protection Act 1972.
4. The species has a single wild population — making a disease outbreak an existential risk.

Select the correct answer using the codes below:

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

Q3. With reference to BHASHINI, consider the following:

1. BHASHINI is developed by NITI Aayog as a multilingual governance platform.
2. It provides translation, transcription, and text-to-speech in all 22 scheduled languages plus English.
3. The DIBD-NITI Aayog Statement of Intent targets the 112 Aspirational Districts as the first deployment zone.
4. BHASHINI's models are proprietary and available only to government departments.



| Click to Connect Now.



Which of the above are correct?

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

Q4. The CBDC-based Direct Benefit Transfer launched in Chandigarh for the Public Distribution System is historically significant because:

- (a) It is the first use of cryptocurrency for government welfare delivery globally
- (b) It is the first use of a Central Bank Digital Currency for a government welfare programme to retail beneficiaries at scale, globally
- (c) It replaces the Aadhaar-based payment system with a blockchain-based alternative
- (d) It allows PDS beneficiaries to use digital rupee for any purchase, not restricted to PDS shops

Q5. With reference to the Southern African Customs Union (SACU), which of the following statements is correct?

- (a) SACU was established in 1960, making it Africa's oldest multilateral trade organisation
- (b) SACU's five members are Botswana, Eswatini, Lesotho, Namibia, and South Africa, and it is the world's oldest customs union, established in 1910
- (c) India and SACU signed a full Free Trade Agreement (FTA) in August 2026
- (d) SACU shares a common currency – the Southern African Rand – across all five member states

Q6. Consider the following about Mithila Makhana:

1. Makhana is derived from the seeds of the *Euryale ferox* (fox nut/lotus seed) plant grown in flooded fields.
2. It received its GI (Geographical Indication) tag in 2022.
3. Bihar produces approximately 80% of India's Makhana.
4. The Mallah community's traditional knowledge is part of what the GI tag recognises.

How many of the above are correct?

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

Q7. The ISRO statement on LEO satellite mega-constellations referenced the 'Kessler Syndrome'. This refers to:



| Click to Connect Now.



- (a) The phenomenon where heavy traffic in Low Earth Orbit causes GPS signal degradation for aircraft
- (b) A cascade scenario where satellite collisions create debris that causes more collisions, potentially rendering certain LEO orbits permanently unusable
- (c) The solar radiation pressure effect that causes satellites in LEO to deorbit faster than planned
- (d) The electromagnetic interference caused by large satellite constellations on ground-based radio telescopes

Q8. With reference to Access and Benefit Sharing (ABS) under the Nagoya Protocol, consider the following:

1. The Nagoya Protocol is a supplementary agreement to the Convention on Biological Diversity (CBD).
2. India's Biological Diversity Act 2002 and the National Biodiversity Authority implement the ABS framework domestically.
3. ABS requires Prior Informed Consent (PIC) from the provider country before genetic resources can be accessed.
4. Monetary benefits from ABS flow only to the central government – states do not receive any share.

Which of the above are correct?

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

Q9. The Jal Jeevan Mission's achievement of 82% rural tap water coverage (from 16.7% in 2019) is significant for all of the following reasons EXCEPT:

- (a) It demonstrates that 12+ crore new rural households received piped water connections in 7 years
- (b) It proves that all rural habitations now have fully functional, reliable, year-round water supply
- (c) It reflects a massive governance achievement in rural infrastructure delivery
- (d) It was released on Independence Day eve, signalling the government's flagship programme priority

Q10. Which of the following correctly describes the difference between 'Tropospheric Ozone' and 'Stratospheric Ozone'?

- (a) Tropospheric ozone is the 'good' ozone that protects life from UV radiation; stratospheric ozone is the 'bad' ozone that causes urban smog
- (b) Both tropospheric and stratospheric ozone are beneficial; the difference is only in altitude
- (c) Stratospheric ozone (15-35 km) protects against UV-B radiation; tropospheric ozone (0-12 km) at ground level is a pollutant that damages lungs and crops
- (d) Stratospheric ozone is formed by NO_x + VOC + sunlight reactions; tropospheric ozone is formed by CFC breakdown





2 MAINS QUESTIONS WITH MODEL ANSWERS

MAINS QUESTION 1 — 150 WORDS:

India's 300 GW non-fossil fuel milestone is celebrated as proof of progress, but critics argue that 'installed capacity' is a misleading metric — India's actual electricity generation is still 70%+ from coal. Evaluate this criticism and explain why installed capacity targets are nonetheless meaningful for India's climate policy.

MODEL ANSWER — 150 WORDS:

The critic is factually accurate but analytically incomplete. India's electricity generation mix is indeed still dominated by coal (~70% of units generated). A 300 GW non-fossil installed capacity does not mean 300 GW of constant clean power — solar's 20-25% capacity factor means 100 GW solar capacity generates 20-25 GW continuously. This distinction matters and should not be elided in public communication. Nevertheless, installed capacity targets are meaningful for three reasons. First, they are the correct metric for India's NDC commitment: India committed to 50% of cumulative installed capacity from non-fossil sources by 2030 — not 50% of generation. Tracking installed capacity is tracking the right variable against the right commitment. Second, generation share is a lagging indicator. Today's installed capacity becomes tomorrow's generation as storage integration (co-located batteries) makes renewables dispatchable. The 300 GW milestone is building the infrastructure for a future high-generation share — sequencing matters. Third, installed capacity drives manufacturing ecosystems, supply chains, and workforce development (module manufacturing, EPC contractors, grid engineers) that make the renewable transition self-sustaining. Generation share follows capacity; capacity must come first. The critique is valid as a communication caution — India must not conflate capacity and generation in public statements. But as a policy milestone, 300 GW installed non-fossil capacity is genuinely significant and on the right trajectory toward the 2030 NDC and 2070 net-zero commitments.

MAINS QUESTION 2 — 250 WORDS:

India's diplomatic engagement with Africa this week included the India-SACU PTA Terms of Reference and the India-Namibia JTC (4th session). These are placed alongside India's BRICS Chairship deliverables (BRICS Culture Ministers' Meeting, BRICS Competition Authorities meeting). Analyse how these two tracks — bilateral Africa trade engagement and BRICS multilateralism — are complementary rather than competing elements of India's Global South strategy.

MODEL ANSWER — 250 WORDS:



| Click to Connect Now.



India's Global South strategy operates on two simultaneous tracks: bilateral deepening (individual country JTCs, bilateral PTAs) and multilateral architecture (BRICS, India-Africa Forum Summit, Voice of the Global South summits). This week's PIB reflects both tracks operating in parallel – and they are genuinely complementary. The bilateral track: India-Namibia JTC (4th session) is building a specific relationship around uranium, rare earths, and green hydrogen. India-Rwanda JTC (Week 10) built specific trade links with East Africa's most business-friendly economy. These bilateral engagements go deep – specific minerals, specific products, specific communities (Indian diaspora, pharmaceutical supply chains). No multilateral framework can replace this granularity. The multilateral track: BRICS provides institutional architecture. India's 2026 Chairship is using BRICS to advance agendas – cultural diplomacy (Bhopal Declaration), competition law coordination (CCI hosting BRICS Heads of Competition Authorities), anti-corruption (Hyderabad meeting, Week 10), and industrial cooperation (BRICS Industry Ministers, Week 10). These multilateral platforms create rules, norms, and institutions that benefit all members including African BRICS members (South Africa, Ethiopia, Egypt). The complementarity operates through three channels. First, SACU's dominant economy South Africa is both a BRICS member and an India-SACU PTA negotiating partner – India's BRICS goodwill with South Africa accelerates the bilateral PTA negotiation. Second, BRICS's cultural platform (Bhopal Declaration) creates people-to-people familiarity that makes bilateral trade agreements politically easier to ratify domestically. Third, BRICS competition law coordination (CCI meeting) creates shared regulatory norms that lower transaction costs for bilateral India-Africa trade – a company that knows both Indian and South African competition rules are aligned faces lower compliance costs. A tension exists: China is the dominant power in BRICS and in Africa (larger investments, more infrastructure projects); India's bilateral Africa track is partly about competing for influence that BRICS's China presence dilutes. Managing the India-China competition within BRICS while simultaneously using BRICS as a Global South platform is India's central diplomatic challenge – this week's events show India managing both tracks simultaneously, not resolving the tension.

PRELIMS ANSWERS & EXPLANATIONS

Q1. Answer: (b) Only three

Explanation: Statement 4 is WRONG – China has 800+ GW and USA has 200+ GW; India at 300 GW is the 3rd largest renewable capacity holder, not the largest. Statements 1 (installed capacity $\neq$ generation; coal dominates generation – correct), 2 (NDC commitment is 50% installed capacity from non-fossil by 2030 – correct), and 3 (solar crossed 100 GW in June 2026 – correct) are all accurate.

Q2. Answer: (a) 1, 3 and 4 only



| Click to Connect Now.



Explanation: Statement 2 is WRONG – the Asiatic Lion is listed as 'Endangered' (not 'Vulnerable') on the IUCN Red List; the population of 891 in a single location (Gir) qualifies as Endangered because extinction risk from a single event (disease, habitat disaster) remains high. Statement 1 (found only in Gir) is correct – unlike African lions which range across sub-Saharan Africa, the Asiatic Lion's only wild population is in Gujarat's Gir. Statement 3 (Schedule I WPA 1972) correct. Statement 4 (single population = disease risk) is correct and is the core conservation concern driving proposals for a second location (Barda Wildlife Sanctuary).

Q3. Answer: (a) 2 and 3 only

Explanation: Statement 1 is WRONG – BHASHINI is developed by MeitY (Ministry of Electronics & IT), not NITI Aayog; NITI Aayog is a partner through this week's Statement of Intent, not the developer. Statement 4 is WRONG – BHASHINI's models are open-source and available through API to any developer (government or private); this open architecture is a key feature that enables private apps to integrate multilingual capability. Statements 2 (22 scheduled languages + English) and 3 (112 Aspirational Districts first deployment) are correct.

Q4. Answer: (b)

Explanation: This is the world's first use of a Central Bank Digital Currency (CBDC) for a government welfare programme to retail beneficiaries at scale. NOT cryptocurrency (CBDC is government-issued legal tender, not decentralised cryptocurrency – critical distinction). NOT replacing Aadhaar (Aadhaar is still used for identity; CBDC replaces the bank account as the delivery vehicle, not Aadhaar). NOT unrestricted spending – the CBDC for PDS is programmable and restricted to PDS shops, which is one of the key features of CBDC-DBT.

Q5. Answer: (b)

Explanation: SACU was established by the 1910 Customs Union Agreement between British colonies in southern Africa – making it the world's oldest customs union. Members are Botswana, Eswatini, Lesotho, Namibia, and South Africa. NOT established in 1960 (that was the Organisation of African Unity's founding year). NOT FTA signed – India-SACU signed only Terms of Reference (ToR) for PTA negotiations in August 2026; no agreement signed yet. NOT common currency – only Lesotho, Namibia, and Eswatini use currencies pegged 1:1 to the South African Rand, but they are separate currencies; South Africa uses the Rand; Botswana uses the Pula.

Q6. Answer: (c) All four

Explanation: All four statements about Mithila Makhana are correct. (1) Euryale ferox = fox nuts = lotus seeds grown in flooded fields – correct botanical identification. (2) GI tag granted 2022 – correct year. (3) Bihar produces 80%+ of India's Makhana – correct. (4) The Mallah community's traditional knowledge is explicitly recognised in the GI tag – the GI protects not just the geographical origin but also the community's cultivation and processing knowledge – correct.

Q7. Answer: (b)



Explanation: Kessler Syndrome (proposed by NASA scientist Donald Kessler, 1978) is the cascade scenario: one collision creates debris → debris causes more collisions → exponential cascade rendering certain LEO bands permanently unusable. NOT GPS degradation (that's a different space weather phenomenon). NOT solar radiation pressure effects (those cause orbital decay, not Kessler cascade). NOT radio telescope interference (that's a light pollution/radio frequency interference issue from bright satellite constellations, not Kessler Syndrome).

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

Explanation: Statement 4 is WRONG – ABS proceeds do flow to states; the ₹15.52 crore ABS payment (this week's article) was distributed to 33 States/UTs and National Institutes; State Biodiversity Boards further distribute to local communities; the ABS framework explicitly includes sub-national sharing. Statements 1 (Nagoya Protocol is supplementary to CBD), 2 (BDA 2002 and NBA implement ABS), and 3 (Prior Informed Consent required before access) are all correct.

Q9. Answer: (b)

Explanation: Option (b) is the INCORRECT/EXCEPTION statement: 82% coverage does NOT mean all covered habitations have fully functional, reliable, year-round supply; NITI Aayog studies found 30-40% of JJM connections have intermittent supply; JJM 2.0 specifically targets 'functionality' over just 'coverage' – acknowledging this gap. Options (a), (c), and (d) are all correct statements about JJM's achievement and significance.

Q10. Answer: (c)

Explanation: Stratospheric ozone (15-35 km altitude) absorbs UV-B radiation = 'good ozone'; Tropospheric ozone at ground level = formed by NO_x + VOC + sunlight, is a lung irritant and crop damager = 'bad ozone' – Option (c) correctly states this. Option (a) reverses the assignment (wrong). Option (b) is incorrect – tropospheric ground-level ozone is harmful. Option (d) reverses the chemistry – NO_x + VOC + sunlight forms tropospheric ozone; CFC breakdown destroys stratospheric ozone (not creates it).





WEEK 3 - AUGUST 2026

IAF MULTINATIONAL EXERCISES — PITCH BLACK 2026 (AUSTRALIA) + UDARA SHAKTI 2026 (MALAYSIA)

Ministry: Ministry of Defence / Indian Air Force

PIB Date: 22nd August 2026

Easy Explanation

Two simultaneous multinational air exercises concluded this week, involving the Indian Air Force with two of India's key Indo-Pacific partners. Exercise Pitch Black 2026 is Australia's flagship biennial multinational air combat exercise, held at RAAF Base Darwin and Tindal in the Northern Territory. It is one of the largest multinational air exercises in the world, with 20+ nations and 140+ aircraft participating. India has participated in Pitch Black since 2018, typically deploying Su-30MKI fighters. The exercise tests air combat tactics, air-to-air refuelling, and combined air operations among allied and partner air forces in a realistic, contested environment. Exercise Udara Shakti 2026 is the India-Malaysia bilateral air exercise, held alternately in India and Malaysia. 'Udara' means 'sky' in Malay and Sanskrit — the shared linguistic heritage reflected in the exercise name. Malaysia operates the Su-30MKM (Malaysian variant of the Su-30MKI) — making interoperability between Indian and Malaysian Sukhois natural and operationally meaningful. Concluding both exercises in the same week signals India's growing air power diplomacy across the Indo-Pacific: from Australia's high-end five-eyes-adjacent exercise to Malaysia's bilateral engagement, Indian air power is becoming a routine feature of regional security architecture.

Key Terms:

Term	Definition
Exercise Pitch Black	Australia's biennial multinational air exercise; RAAF Darwin + Tindal; 20+ nations, 140+ aircraft; IAF deploys Su-30MKI; tests air combat, aerial refuelling, combined air ops; India participates since 2018



| Click to Connect Now.



Exercise Udara Shakti	India-Malaysia bilateral air exercise; alternating venues; 'Udara' = sky (Malay + Sanskrit); Malaysia operates Su-30MKM (Sukhoi family); natural interoperability with IAF's Su-30MKI; bilateral air relationship deepening
Su-30MKI	India's frontline multi-role fighter; HAL-assembled under licence from Russia (Sukhoi); 260+ in IAF service; thrust-vectoring, BrahMos-capable; primary aircraft for Pitch Black and Udara Shakti deployments
Air power diplomacy	Using military aviation exercises to build partnerships, demonstrate capability, and signal strategic alignment; India increasingly uses air exercises (Tasman Saber, Cope India, Garuda, Desert Eagle) as Indo-Pacific diplomacy instruments
RAAF (Royal Australian Air Force)	Australia's air force; operates F/A-18F Super Hornets, F-35A Lightning II (being inducted); RAAF Darwin is Australia's most northward-deployed air base = closest to South/Southeast Asia; strategic significance
Indo-Pacific air architecture	India's exercise network: Pitch Black (Australia), Cope India (USA), Garuda (France), Tasman Saber (Australia+USA), Udara Shakti (Malaysia), Shaheen (Pakistan, suspended), Desert Eagle (UAE); multilateral air interoperability building
Contested environment training	Modern air exercises simulate denied/contested airspace: electronic warfare, advanced SAMs, cyber interference; Pitch Black specifically designed to challenge participants in complex, multi-threat environments

Important Points for UPSC:

- Pitch Black significance: Australia is a Quad partner; India-Australia Comprehensive Strategic Partnership (2020) includes defence; Pitch Black is where India-Australia air interoperability is built – this relationship matters for any future Quad military coordination
- Malaysia defence relationship: Malaysia is ASEAN's second-largest defence partner for India after Singapore; India-Malaysia defence MoU (2019); Sukhoi commonality makes Udara Shakti operationally deep, not just diplomatic; Malaysia's Su-30MKM maintenance has benefited from HAL expertise





- Simultaneous exercises message: Concluding both exercises in the same week sends a clear message of India's air power reach – the IAF is simultaneously operating in Australia and Malaysia while maintaining deployments in India; capacity signal to the region
- Act East Policy air dimension: India's Act East Policy is usually discussed through trade and infrastructure; its military dimension includes exercises like Udara Shakti (Malaysia), Simbex (Singapore, Navy), and Shakti (France, held in India/France); air exercises are Act East's security operationalisation

INS MANGROL — THIRD ANTI-SUBMARINE WARFARE SHALLOW WATER CRAFT DELIVERED BY CSL, KOCHI

Ministry: Ministry of Defence / Indian Navy

PIB Date: 22nd August 2026

Easy Explanation

Anti-Submarine Warfare (ASW) is arguably the most technically demanding form of naval combat. Submarines are invisible to radar, nearly silent when running on battery power, and capable of threatening aircraft carriers, surface ships, and undersea infrastructure from great depths. Countering them requires specialised ships, aircraft, and sensors working together. The Anti-Submarine Warfare Shallow Water Craft (ASW SWC) is India's indigenously designed vessel specifically for shallow-water submarine hunting – in coastal waters, harbours, and the continental shelf where conventional frigates struggle to operate efficiently. These compact vessels (approximately 750 tonnes, 77 metres long) are built by Cochin Shipyard Limited (CSL), Kochi, under an MoD contract. INS Mangrol is the third of a series of eight ASW SWCs being delivered. Each vessel carries: hull-mounted sonar, towed array sonar (for deep-water capability), torpedo launchers, and rocket launchers for depth charges. The progressive delivery of this class – Mahe (1st), Mulki (2nd), Mangrol (3rd) – demonstrates CSL's production efficiency and India's ambition to have a comprehensive coastal ASW network. This matters particularly because Pakistan's submarine fleet operates in the shallow waters of the Arabian Sea, and China's submarine presence in the Indian Ocean requires India to maintain deep, layered ASW capability.

Key Terms:

Term	Definition
ASW SWC (Anti-Submarine Warfare Shallow Water Craft)	Indigenously designed; ~750 tonnes, 77 metres; hull-mounted sonar, towed array sonar, torpedo launchers, depth charge



| Click to Connect Now.



	rockets; built by CSL Kochi; 8-vessel class; INS Mahe (1st), Mulki (2nd), Mangrol (3rd)
CSL (Cochin Shipyard Limited)	Kochi, Kerala; India's largest shipyard by dry dock capacity; public sector; built INS Vikrant (aircraft carrier); ASW SWCs, fast patrol vessels, LPDs; demonstrates India's shipbuilding breadth
ASW (Anti-Submarine Warfare)	Detecting, tracking, and neutralising enemy submarines; uses: sonar (active/passive), maritime patrol aircraft (P-8I), helicopters (MH-60R, Chetak), ASW ships; India's layered ASW = P-8I (air), destroyers (surface), ASW SWC (coastal)
Hull-mounted sonar	Sonar fitted to ship's hull; active (sends sound pulse, listens for echo) and passive (listens only); short to medium range; primary ASW sensor for shallow water
Towed Array Sonar	Long cable with hydrophones towed behind ship; detects submarines at greater range than hull-mounted; particularly effective in deep water; ASW SWC has this = shallow + deep water capability
Pakistan + China submarine context	Pakistan: 5 Agosta-90B submarines + 8 Hangor-class (China-built, Type 039B) on order; operate in shallow Arabian Sea; China: 70+ submarines, increasing IOR presence; India's coastal ASW = direct response
8-vessel class	CSL building 8 ASW SWCs for Indian Navy; progressive delivery; each delivery = more coastal ASW coverage; 8 vessels can patrol India's entire western and eastern coastal ASW zones simultaneously

Important Points for UPSC:

- CSL's portfolio: CSL built INS Vikrant (India's first indigenous aircraft carrier, 2022) + ASW SWCs + Survey vessels + Coast Guard vessels; demonstrates India's ability to build both the largest and most specialised naval vessels – breadth of shipbuilding industrial capability
- Shallow water ASW challenge: Conventional frigates with large hull-mounted sonars are less effective in shallow water (reverberation from the seabed, thermal layers); dedicated SWCs with shallow-water optimised sonars are essential; this is why India needs a dedicated class rather than using frigates





- Pakistan's Type 039B (Hangor-class): China is building 8 submarines for Pakistan; Yuan-class derivative; air-independent propulsion (AIP) = can stay submerged longer; significantly upgrades Pakistan's underwater threat; India's ASW SWC programme is in direct response
- India's layered ASW: P-8I Poseidon (Boeing, 12 ordered) for long-range ASW patrol; MH-60R Seahawk (helicopter, 24 ordered) for ship-based ASW; Chetak and Sea King legacy helicopters; Destroyers and frigates; ASW SWCs for coastal; this layered architecture is India's comprehensive underwater defence

NBA RELEASES ₹2.82 CRORE ABS FUNDS — HORTICULTURAL GENETIC RESOURCES, KARNATAKA

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

PIB Date: 22nd August 2026

Easy Explanation

This is the third ABS (Access and Benefit Sharing) payment story in three consecutive PIB weeks — ₹15.52 crore for mustard genetic resources (Week 12), ₹3.79 crore general ABS (Week 12 Honorary Mentions), and now ₹2.82 crore for horticultural genetic resources linked to ICAR-Indian Institute of Horticultural Research (ICAR-IIHR), Bengaluru, Karnataka. The pattern is significant: the ABS mechanism under India's Biological Diversity Act 2002 and the Nagoya Protocol is not a one-time event — it is a maturing, recurring revenue stream from India's genetic resources to the communities and institutions that stewarded them. ICAR-IIHR is India's premier horticultural research institute, based in Bengaluru. Its germplasm collections cover: mango (India is the world's largest mango producer), banana, citrus, sapota, papaya, guava, and other tropical and subtropical fruits and vegetables. When commercial seed companies, food companies, or pharmaceutical companies access these horticultural genetic resources and commercialise products from them, NBA collects ABS payments and distributes them. This ₹2.82 crore goes to 27 State Biodiversity Boards and 3 UT Biodiversity Councils — proportional to their horticultural genetic resource contribution — as well as to ICAR-IIHR directly.

Key Terms:

Term	Definition
ICAR-IIHR	Indian Institute of Horticultural Research; Bengaluru, Karnataka; ICAR institute; germplasm of mango, banana, citrus, tropical fruits; India's premier horticulture research; horticultural genetic resources = ABS source



| Click to Connect Now.



ABS — third consecutive week	₹15.52 crore (mustard, Week 12) + ₹3.79 crore (general, Week 12) + ₹2.82 crore (horticultural, Week 13) = ABS mechanism delivering recurring revenue; Nagoya Protocol working as designed across multiple crop categories
Horticultural germplasm	Genetic material from fruit crops (mango, banana, citrus, sapota, papaya, guava); India is primary diversity centre for many tropical fruits; international companies access these for new variety development; NBA charges ABS fee
27 SBBs + 3 UT BCs	State Biodiversity Boards (SBBs) — state-level NBA equivalent; UT Biodiversity Councils; receive ABS proceeds proportional to genetic resource contribution from their territory; further distribute to Biodiversity Management Committees and local communities
India's mango genetic diversity	India = world's largest mango producer (24 million tonnes/year); primary centre of mango (<i>Mangifera indica</i>) diversity; 1,000+ mango varieties; Alphonso, Langra, Dussehri, Kesar, Totapuri — each with unique genetic traits accessed by companies
Recurring ABS revenue	Three ABS payments in three weeks = ABS becoming systematised; as more companies register ABS agreements with NBA, India's ABS revenue will grow; UPSC: know the Nagoya Protocol → BDA 2002 → NBA → SBB → BMC distribution chain
Karnataka horticulture significance	Karnataka = top producer of grapes, pomegranate, sapota, banana, mango; ICAR-IIHR Bengaluru = national repository; Karnataka's biodiversity = large ABS share; ICAR-IIHR as direct recipient institution

Important Points for UPSC:

- Nagoya Protocol implementation maturity: India ratified Nagoya Protocol in 2012; BDA 2002 was already in place; initial ABS payments were slow and irregular; three consecutive weeks of ABS payments in 2026 shows the system has matured — more companies registering, more payments flowing
- Mango genetic diversity and ABS: India's mango diversity is a global asset — Alphonso's unique flavour profile, Langra's specific texture, Kesar's colour; international companies developing new mango varieties using Indian germplasm pay ABS; each payment protects India's genetic sovereignty





- ICAR-NBPGR vs ICAR-IIHR: NBPGR (National Bureau of Plant Genetic Resources, New Delhi) = national gene bank for all crops; IIHR = horticultural research institute; both have germplasm collections and both are ABS revenue recipients; know the distinction
- BMC (Biodiversity Management Committees): Village-level bodies under BDA 2002; maintain People's Biodiversity Register (PBR) documenting local biological resources and associated traditional knowledge; ABS proceeds eventually reach communities through SBB → BMC chain

FDC BAN — CHLORPHENIRAMINE + PHENYLEPHRINE FOR CHILDREN BELOW FOUR YEARS

Ministry: Ministry of Health and Family Welfare / CDSCO

PIB Date: 22nd August 2026

Easy Explanation

Fixed Dose Combinations (FDCs) are pharmaceutical products that combine two or more active ingredients in a single tablet, syrup, or capsule. They are popular because they simplify dosing — one medicine instead of two. But they are also problematic: the combination may not be clinically necessary, one component may cause harm in certain patients, and the fixed ratio may not allow dose adjustment for each component independently. India has a large market of FDCs, many of which were approved by state governments before central regulation was tightened. The government has been progressively banning irrational FDCs since the D.Y. Patil Committee (2012) and the Expert Committee (2016) identified hundreds of combinations lacking scientific evidence of therapeutic advantage over individual drugs. This week, the government restricted the manufacture, sale, and distribution of FDCs containing two specific compounds — Chlorpheniramine Maleate (an antihistamine used in cough-cold preparations) and Phenylephrine Hydrochloride (a decongestant) — specifically for use in children below four years. The reason: in children under 4, these compounds carry significant risks (cardiac effects of Phenylephrine, sedation from Chlorpheniramine) with unclear efficacy for cold symptoms in this age group. International paediatric bodies (WHO, AAP) have long recommended against using cold medications in children under 2 (sometimes under 6) years. India's ban is consistent with global evidence-based medicine direction.

Key Terms:

Term	Definition
FDC (Fixed Dose Combination)	Two or more active pharmaceutical ingredients in one product; popular for convenience; problematic when combination is



| Click to Connect Now.



	irrational (no therapeutic advantage), components have different dose requirements, or one component is unnecessary/harmful
Chlorpheniramine Maleate	First-generation antihistamine; blocks histamine H1 receptors; used in cough-cold-allergy; causes sedation (crosses blood-brain barrier); in children under 4: sedation risk, unclear cold efficacy → banned in this FDC
Phenylephrine Hydrochloride	Sympathomimetic decongestant; α 1-adrenergic agonist; nasal decongestion by vasoconstriction; cardiac effects (increased blood pressure, heart rate); in children under 4: cardiovascular risk disproportionate to benefit → banned in this FDC
CDSCO (Central Drugs Standard Control Organisation)	India's drug regulator; under MoHFW; approves new drugs, regulates manufacturing, bans irrational FDCs; Central Drugs Technical Advisory Board (CDTAB) advises; state FDA implements at ground level
D.Y. Patil Committee (2012)	Expert committee that examined FDCs approved by state licensing authorities without central approval; identified 294 FDCs for ban consideration; followed by Kokate Committee (2014); led to 2016 nationwide FDC bans by MoHFW
Paediatric drug regulation	Children $\neq$ small adults; drug metabolism, organ development, body composition differ; WHO's Essential Medicines for Children list; India's New Drugs and Clinical Trials Rules 2019 require paediatric studies for certain drugs; FDC ban for under-4 = evidence-based paediatric regulation
Irrational FDC problem	India has 1,000s of FDC brands; many lack scientific evidence; combination may be harmful (drug-drug interaction), unnecessary (one component inactive), or have fixed ratios unsuitable for all patients; government progressive rationalization ongoing

Important Points for UPSC:

- FDC ban history: 1988 (first attempt), 2007 (344 FDCs banned by MoHFW, challenged in courts), 2016 (ban on 344 FDCs after Kokate Committee, Delhi HC stayed some, SC restored ban), 2023 (further bans); each round increases regulatory rigour; this week's ban is targeted (specific age group + specific combination)





- Phenylephrine controversy: US FDA (2023) declared oral Phenylephrine ineffective as a nasal decongestant at approved doses; India's ban is for under-4 children – goes further than just efficacy (also cardiac safety); eventually Phenylephrine may face broader challenge in India too
- CDSCO vs State FDAs: Pre-2018, state licensing authorities approved many FDCs without central scrutiny; New Drugs definition expansion (2016) brought more products under CDSCO control; FDC bans are central government decisions but enforcement is through state FDA and local drug inspectors
- Self-medication risk in India: Cold-cough FDCs are among India's most purchased OTC (over-the-counter) medicines; parents self-medicate children; a widely-used, easily-available FDC that is now banned requires awareness campaign alongside regulatory action to actually reduce harm

INDIA-NEW ZEALAND DEFENCE STRATEGIC DIALOGUE – 2ND EDITION, WELLINGTON

Ministry: Ministry of Defence

PIB Date: 25th August 2026

Easy Explanation

The second India-New Zealand Defence Strategic Dialogue, held in Wellington, marks a quiet but meaningful deepening of India's defence partnership with one of the Indo-Pacific's most credible mid-powers. New Zealand is a Five Eyes member (intelligence sharing with USA, UK, Canada, Australia), part of AUKUS's broader Indo-Pacific security architecture, and a country whose strategic orientation has been shifting towards greater engagement with India as China's regional assertiveness grows. India and New Zealand signed a Statement of Intent on Defence Cooperation in 2019. The Defence Strategic Dialogue at this 2nd iteration covers: maritime security cooperation (NZ's EEZ is the 4th largest in the world – 4.3 million sq km – giving it significant interest in Pacific maritime governance); intelligence sharing frameworks; defence industry collaboration (India's \$5 billion defence export target finds a willing partner in NZ's NZDF procurement); and humanitarian assistance and disaster relief (HADR) cooperation in the Pacific, where India's SAGAR doctrine and NZ's Pacific Reset policy converge. New Zealand's armed forces are small (15,000 personnel) but highly capable and interoperable with Five Eyes partners – a bridge between India and the Five Eyes intelligence network.

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



India-NZ Defence Strategic Dialogue	2nd edition, Wellington; maritime security, intelligence sharing, defence industry, HADR; India-NZ Statement of Intent on Defence Cooperation (2019); NZ = Five Eyes member
Five Eyes	Intelligence sharing alliance: USA, UK, Canada, Australia, New Zealand; signals intelligence (SIGINT), imagery intelligence (IMINT), human intelligence (HUMINT) shared; India is not a member but has bilateral intelligence arrangements with each member
New Zealand's EEZ	4.3 million sq km – 4th largest in world; Pacific Ocean; fisheries, seabed minerals, maritime routes; NZ's Pacific interests complement India's Indo-Pacific maritime security agenda
AUKUS	Australia-UK-USA trilateral; nuclear-powered submarine technology transfer to Australia; advanced defence technology (AI, quantum, hypersonics); NZ excluded but close to AUKUS partners; India watches AUKUS carefully as Indo-Pacific security architecture
Pacific Reset (NZ)	NZ's strategic policy to re-engage Pacific Island nations; climate change, development, security; aligns with India's SAGAR (Security and Growth for All in the Region) in the Indian Ocean; HADR convergence in Pacific-Indian Ocean nexus
India's defence export target	\$5 billion by 2028-29; current \$2.8 billion; NZ is a potential buyer of Indian defence products – especially fast patrol vessels (similar to those India exports to Pacific island nations), maritime surveillance systems
HADR cooperation	Humanitarian Assistance and Disaster Relief; Pacific cyclones, earthquakes; India and NZ both respond to Pacific disasters; joint exercises and protocols = disaster response coordination; 2023 Cyclone Winston (Fiji) saw both India and NZ respond

Important Points for UPSC:

- India's Five Eyes adjacency: India is not in Five Eyes but has bilateral intelligence arrangements with USA (GSOMIA), Australia, UK; NZ dialogue adds another node; India's strategic value to Five Eyes = India's intelligence on China, Pakistan, and IOR = bilateral exchange





- AUKUS and India: India not invited to AUKUS (Australia-UK-USA nuclear submarine deal); India's response has been to deepen bilateral arrangements with each member; India-Australia (Comprehensive Strategic Partnership), India-UK (2030 Roadmap), India-USA (iCET), India-NZ (Defence Strategic Dialogue) = AUKUS-adjacent without AUKUS membership
- NZ's small but capable military: NZDF operates P-3K2 Orion maritime patrol aircraft, C-130H Hercules, NH90 helicopters; replacing with P-8A Poseidon (same as India's P-8I); common platforms = natural interoperability; defence dialogue opens door for joint exercises and possibly equipment commonality
- Pacific Island nations context: India's SAGAR + NZ's Pacific Reset both invest in Pacific Island nations' development and security; coordinating this investment prevents duplication and builds India's Pacific presence through NZ's established relationships – strategic complementarity

INS NIPUN – SECOND INDIGENOUS DIVING SUPPORT VESSEL TO BE COMMISSIONED

Ministry: Ministry of Defence / Indian Navy

PIB Date: 25th August 2026

Easy Explanation

Diving Support Vessels (DSVs) are among the least glamorous but most strategically important ships in a navy's fleet. They support: submarine rescue (if a submarine is trapped on the seabed, a DSV's saturation diving system can put divers to work at depths of 300+ metres for extended periods); salvage operations (recovering sunken ships, equipment, black boxes, weapons); underwater infrastructure maintenance (harbours, cables, pipelines, buoys); mine clearance diving; and support for special operations forces underwater. India's first indigenous DSV, INS Nistar, was delivered by Larsen & Toubro's Kattupalli shipyard in 2023. INS Nipun is the second, and is set to be commissioned this week – also built by a private sector Indian shipyard, reflecting India's defence shipbuilding policy of engaging private players for specialised vessels. Key capabilities: saturation diving system (divers live in a pressurised habitat on the ship, breathe a helium-oxygen mix, and can work at 300+ metre depths for weeks without decompressing every day); remotely operated vehicles (ROVs) for inspection and light intervention; submarine rescue vehicle interface; and hospital facilities for treating divers who get decompression sickness. With the Indian Navy operating 16+ submarines and planning to have 24, having dedicated DSVs is operationally essential.

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



DSV (Diving Support Vessel)	Specialised ship for: submarine rescue, salvage, underwater infrastructure, mine clearance, special operations; INS Nistar (1st indigenous, L&T Kattupalli, 2023) and INS Nipun (2nd, this week)
Saturation Diving	Divers live in pressurised habitat on ship at working pressure; breathe helium-oxygen (heliox) mix; can work at 300+ metres for weeks without daily decompression; DSV's most critical capability for deep submarine rescue
Submarine rescue	If submarine is disabled/trapped: DSV deploys DSRV (Deep Submergence Rescue Vehicle) that mates with submarine escape hatch; DSRV brings crew to surface in pressurised chamber; India operates US-supplied DSRV; DSV provides the mothership
INS Nistar	India's first indigenous DSV; L&T Kattupalli shipyard; delivered 2023; demonstrated India's private sector shipbuilding capability for complex specialised vessels; INS Nipun = second vessel, same class
ROV (Remotely Operated Vehicle)	Unmanned underwater vehicle tethered to ship; cameras, manipulator arms; inspection and light intervention; DSV-deployed ROVs survey underwater infrastructure (harbour walls, cable landings, pipeline inspection)
India's submarine fleet	16+ submarines currently: 1 Arihant (nuclear, SSBN), 1 Arighat (SSBN, recently commissioned), Chakra-III (nuclear, leased from Russia), 1 Chakra-II (returned), 14 conventional (6 Scorpène, 4 Sindhughosh, 4 Shishumar); 24 submarines target; DSV essential for fleet of this size
Decompression sickness	'The bends' – gas bubbles forming in blood when divers surface too fast; treatment: recompression in hyperbaric chamber on DSV; DSV has onboard hospital and hyperbaric chambers for emergency treatment

Important Points for UPSC:

- Private sector shipbuilding: INS Nistar (L&T Kattupalli) and INS Nipun (also private sector) demonstrate that India's defence shipbuilding is not just DPSUs – private companies like L&T, Cochin Shipyard (listed), are building complex specialised naval vessels; Defence Acquisition Procedure 2020 enabling this





- India's DSRV gap: India has one DSRV (Deep Submergence Rescue Vehicle), US-supplied, based at Visakhapatnam; it can rescue crews from submarines down to 650m; with two DSVs now operational, India has two motherships for DSRV operations – if one DSV is in maintenance, the other covers; redundancy critical for life-saving capability
- Submarine rescue multilateralism: India participated in Pacific Reach submarine rescue exercise; bilateral DSRV support agreements with neighbours (Sri Lanka, Myanmar expressed interest after DSRV demonstration); India as submarine rescue provider in Indian Ocean = SAGAR doctrine operationalised
- 24-submarine target: India plans 24 submarines – 6 nuclear (3 SSBNs + 3 SSNs, Project 75 Alpha) + 18 conventional; currently ~16; at 24 submarines, the probability of one needing DSV support at any given time is significant; 2 DSVs = minimum coverage for a 24-submarine fleet

DRDO MISSILE SYSTEMS — TRANSFER OF TECHNOLOGY TO INDIAN DEFENCE INDUSTRY

Ministry: Ministry of Defence / DRDO

PIB Date: 25th August 2026

Easy Explanation

The Transfer of Technology (ToT) of DRDO-developed missile systems to Indian private defence companies is a landmark policy shift – one that DRDO has historically resisted and that the defence industry has long demanded. DRDO develops missile systems (Astra air-to-air missile, Akash surface-to-air missile, Prithvi ballistic missile, Pinaka multi-barrel rocket system, SMART anti-submarine rocket, Nag anti-tank missile, MRSAM/Barak-8 with Israel) and has traditionally retained production with public sector companies (Bharat Dynamics Limited for Astra, Akash; Bharat Earth Movers for Pinaka). Private companies – Tata, L&T, BFL, Data Patterns – have been pushing for ToT so they can manufacture missiles competitively and potentially export. Raksha Mantri's approval of ToT for 'DRDO-developed missile systems to Indian defence industry' this week does not specify which systems, but the significance is structural: DRDO moving from 'developer and monopolist' to 'developer and licensor' mirrors what happened in aviation (HAL produces LCA but ToT for certain components went to private sector) and what is happening in electronics (DLI Scheme). The ToT enables: private manufacturing of missiles → cost reduction through competition → ability to export → scaling India's missile industrial base beyond BDL's capacity.

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



ToT (Transfer of Technology)	Licensor (DRDO) gives recipient (private company) technical documentation, manufacturing know-how, and rights to produce; royalties paid to DRDO; recipient can manufacture but not independently improve/export without permission
DRDO missile portfolio	Astra (BVR air-to-air), Akash (SAM), Prithvi (ballistic), Pinaka (MBRL), Nag (anti-tank), SMART (anti-submarine), MRSAM/Barak-8 (with Israel); production historically with BDL, BEML; ToT now opening to private
BDL (Bharat Dynamics Limited)	Hyderabad; DPSU; primary missile manufacturer for India; produces Akash, Astra, MRSAM, Milan, Konkurs; ToT to private sector creates competition for BDL but also pressure to improve efficiency and cost
Private defence companies	Tata Advanced Systems, L&T Defence, Bharat Forge, Data Patterns, Astra Microwave – all seeking missile system ToT; some already in supply chain for missile components; full ToT = complete missile production capability
Defence export imperative	India's \$5 billion defence export target; missiles are high-value defence exports; Philippines bought BrahMos; Akash SAM has interest from multiple countries; private sector with ToT can export more aggressively than BDL alone
DRDO's ToT precedents	DRDO already gave ToT of Pinaka MBRL to Tata and L&T for manufacturing; Akash components to private MSME suppliers; this week's approval extends ToT to 'missile systems' more broadly – potentially complete system ToT
Defence Acquisition Procedure 2020	Buy (Indian-IDD) prioritises indigenously designed, developed and manufactured weapons; ToT enables private companies to claim IDD status for missile systems = preferential procurement access

Important Points for UPSC:

- Why DRDO resisted ToT: DRDO's funding and prestige comes from being the sole developer and technical authority; giving ToT risks losing technical control, reduces DRDO's leverage over procurement decisions, and may expose classified technical details; this week's approval shows MoD overruled DRDO's institutional resistance in favour of industry scaling





- Astra missile export potential: Astra Mk-1 (100 km range BVR air-to-air) and Mk-2 (160 km, in development); Vietnam, Indonesia, Egypt have expressed interest; with private sector ToT, Astra can be manufactured at scale for export at competitive prices; this is the commercial logic driving the decision
- Akash-NG export: Akash surface-to-air missile (SAM) has been exported to Armenia (domestic; MoD approved); Akash-NG (Next Generation, 70 km range) is in development; ToT to private sector = faster production scale + export capability; multiple countries in Middle East, ASEAN interested
- BDL disruption: BDL's stock fell after ToT announcement – market correctly reads that BDL's monopoly on missile production is ending; BDL will need to compete on cost, quality, and delivery timeline; this is healthy but BDL will need restructuring; compare to OFB→7 DPSUs restructuring (2021)

INS SAMARTHAK – FIRST INDIGENOUS MULTI-PURPOSE VESSEL OF INDIAN NAVY DELIVERED

Ministry: Ministry of Defence / Indian Navy

PIB Date: 27th August 2026

Easy Explanation

The delivery of INS Samarthak – India's first indigenously built Multi-Purpose Vessel (MPV) – completes a remarkable week in Indian naval shipbuilding news: INS Mangrol (ASW SWC, 22nd Aug), INS Nipun (DSV, 25th Aug), and now INS Samarthak (MPV, 27th Aug) – three different types of specialised naval vessels delivered or commissioned in one week. MPVs are the Swiss Army knives of naval logistics. INS Samarthak's capabilities include: harbour towing (moving large ships in confined harbour spaces without their own power); ocean-going salvage (towing disabled ships at sea); firefighting (high-capacity water monitors and fire suppression systems for ship fires in harbour); pollution control (oil spill containment and recovery equipment); and emergency rescue at sea. Every major naval base needs MPVs for the mundane but essential tasks that keep a fleet operational. Previously, India relied on commercial tugs and foreign MPVs for these functions. INS Samarthak's indigenous construction (by Goa Shipyard Limited, another DPSU alongside CSL which built Mangrol) marks another step in India's naval auxiliary vessel self-sufficiency – ensuring that even the non-combat support fleet is 'Make in India'.

Key Terms:

Term	Definition
------	------------



| Click to Connect Now.



MPV (Multi-Purpose Vessel)	Naval auxiliary; harbour towing, ocean salvage, firefighting, pollution control, emergency rescue; INS Samarthak = India's first indigenous MPV; Goa Shipyard Limited built
Goa Shipyard Limited (GSL)	Vasco da Gama, Goa; DPSU; builds OPVs, fast patrol vessels, survey vessels, MPVs; alongside CSL (Kochi) and MDL (Mumbai) forms India's DPSU shipbuilding triad
Harbour towing	Moving large warships (destroyers, frigates, submarines) in confined harbour waters; requires specialised powerful tugboats; without harbour tugs, ships cannot manoeuvre safely in port; MPV provides this
Ocean-going salvage towing	Towing a disabled ship (engine failure, battle damage) across open ocean; requires enormous bollard pull (towing force); ocean salvage = difference between recovering or losing a warship worth ₹2,000-10,000 crore
Naval firefighting	Ship fires are catastrophic; MPV carries high-capacity fire monitors and compressed air foam systems; can fight fires on other ships, fuel storage, harbour infrastructure; INS Samarthak as floating fire brigade
Naval auxiliary fleet indigenisation	India's combat ships (destroyers, frigates, submarines) increasingly indigenous; now extending to auxiliaries (DSV, MPV, replenishment vessels, survey ships); complete naval ecosystem of Indian manufacturing
GSL + CSL same week	Goa Shipyard (Samarthak, MPV) + Cochin Shipyard (Mangrol, ASW SWC) + INS Nipun (DSV) all in same week = India's multiple shipyards simultaneously delivering across vessel types; unprecedented peacetime naval construction pace

Important Points for UPSC:

- India's naval construction pace 2026: Week 9 (INS Machilipatnam), Week 10 (DSC A24), Week 11 (NGOPV), Week 12 (none), Week 13 (Mangrol + Nipun + Samarthak) – three vessels in one week; 46 warships and submarines under construction across Indian yards; this pace is unprecedented in peacetime Indian naval history
- Auxiliary fleet importance: A navy without auxiliaries is like an army without supply trucks – the combat ships cannot operate sustainably; replenishment oilers (INS Shakti, Deepak), survey ships,



| Click to Connect Now.



DSVs, MPVs = the unsexy but essential support fleet; India's indigenous auxiliary fleet growing alongside combat fleet

- GSL's role: Goa Shipyard historically built smaller vessels (OPVs, fast patrol vessels); MPV is a more complex vessel requiring larger fabrication capability; INS Samarthak = GSL's expansion into medium-complexity auxiliary vessels; alongside GRSE (Kolkata) building corvettes, India has geographic distribution of naval construction

INDIA-KUWAIT JOINT DEFENCE COMMITTEE — INAUGURAL MEETING

Ministry: Ministry of Defence

PIB Date: 28th August 2026

Easy Explanation

The inaugural India-Kuwait Joint Defence Committee (JDC) meeting in New Delhi marks a quiet but strategically significant expansion of India's Gulf defence partnerships. India's traditional Gulf defence relationships have been with the UAE (the most advanced – India-UAE Comprehensive Strategic Partnership 2022 includes defence; joint exercises; Tawazun Economic Council investments in India's defence industry) and to a lesser extent Saudi Arabia and Oman. Kuwait has been somewhat peripheral to India's Gulf defence diplomacy despite the close people-to-people relationship (1 million+ Indian diaspora in Kuwait, India's largest source of remittances from Kuwait ~\$4 billion/year). Kuwait's strategic significance: it sits at the northern tip of the Persian Gulf, borders Iraq and Saudi Arabia, hosts US military bases (Camp Arifjan – one of the largest US military bases in the Middle East), and is a significant buyer of Western defence equipment. India's interest in a Kuwait JDC is multi-layered: defence exports (Kuwait has announced a \$5 billion defence modernisation programme; India's fast patrol boats, lightweight howitzers, and surveillance equipment are competitive options); maritime security (Kuwait's strategic position in the Gulf makes India-Kuwait maritime coordination valuable for securing energy supply lines); and soft power (the large Indian diaspora creates a constituency for deeper relations).

Key Terms:

Term	Definition
India-Kuwait JDC	Joint Defence Committee; inaugural meeting; New Delhi; defence exports, maritime security, military training; Kuwait's defence modernisation programme = Indian opportunity





Kuwait's strategic position	Northern Persian Gulf; borders Iraq + Saudi Arabia; hosts US military bases (Camp Arifjan); significant for Gulf energy security; 1 million+ Indian diaspora; ~\$4 billion remittances to India
India's Gulf defence arc	UAE (most advanced – CSP 2022, joint exercises, defence investments), Saudi Arabia (MoU, joint exercises), Oman (DOST exercise, base access), Kuwait (JDC inaugural, Week 13); India systematically building defence relationships across all GCC states
Kuwait defence modernisation	Kuwait announced \$5 billion defence modernisation; primarily Western equipment (US F/A-18, Patriot SAMs) but India competitive for: fast patrol boats, C4ISR systems, lightweight artillery, training services
India-Kuwait people connection	1 million+ Indians in Kuwait (25% of Kuwait's population is Indian); one of largest Indian diaspora communities in world; sends ~\$4 billion remittances to India annually; people-to-people connection = political support for deeper defence ties
GCC defence market	Gulf Cooperation Council: Saudi Arabia, UAE, Kuwait, Bahrain, Qatar, Oman; combined defence budget \$90+ billion; India's defence export push targets GCC as primary market for non-aligned countries; JDC = formal mechanism to compete
India-UAE defence comparison	India-UAE = most advanced Gulf defence relationship; Tawazun invested in Indian defence companies; joint manufacturing; joint exercises; Mirage-2000 upgrade cooperation; Kuwait JDC is at the beginning of a similar trajectory

Important Points for UPSC:

- GCC defence market for India: India's \$5 billion defence export target requires large buyers; GCC collectively spends \$90+ billion on defence; India competes for patrol vessels, artillery, surveillance, training services; each JDC with a GCC state opens this market; UAE + Oman + Saudi Arabia + Kuwait = systematic GCC penetration
- Camp Arifjan significance: US military base in Kuwait = Kuwait is deeply embedded in US security architecture; India-Kuwait JDC = India entering a US-aligned Gulf state's defence space; signals Gulf states' interest in diversifying defence partnerships beyond pure US dependency
- India's defence diplomacy geography: South Asia (SAARC members), Southeast Asia (ASEAN states, Vietnam bilateral), Middle East/Gulf (GCC + Israel), Africa (Seychelles, Mauritius, Mozambique,





Tanzania), Pacific (Australia, NZ, Fiji); JDC is India's primary bilateral defence mechanism = each JDC = a new node in India's defence network

DEFENCE EXPORT SOP + OPEN GENERAL EXPORT LICENCE — SIMPLIFIED FOR INDIAN INDUSTRY

Ministry: Ministry of Defence

PIB Date: 28th August 2026

Easy Explanation

The simplification of India's defence export Standard Operating Procedure (SOP) and the framework for Open General Export Licences (OGEL) is a significant regulatory reform aimed at removing the procedural friction that has been holding back India's defence export ambitions. India's \$5 billion defence export target by 2028-29 requires not just producing good defence equipment but also being able to export it quickly and reliably. The current problem: India's defence export approval process involved multiple clearances (MoD, MEA, Ministry of Home Affairs for dual-use items, DGFT for export licences) that could take months, creating uncertainty for foreign buyers who have competing offers from established exporters (Israel, Russia, USA, France) that have streamlined export procedures. The simplified SOP: single-window clearance for defence exports to 'trusted partner countries' (a pre-approved list), faster timelines for repeat exports to established buyers, and standardised documentation. The OGEL: instead of applying for a licence for each export of a particular item to a particular country, Indian exporters of certain defence items can get an Open General Export Licence that covers multiple exports without individual approval — similar to the UK's OGEL system which has been used as a model. This makes Indian defence exporters as agile as their Israeli, South Korean, and Czech competitors.

Key Terms:

Term	Definition
Defence Export SOP	Standard Operating Procedure; simplified process; single-window for trusted partner countries; faster timelines for repeat exports; standardised documentation; reduces months-long process to weeks
OGEL (Open General Export Licence)	Covers multiple exports of specified items to specified countries without individual licence; UK model; once OGEL issued, exporter can ship within OGEL parameters without fresh MoD/MEA clearance each time; game-changer for defence SMEs



| Click to Connect Now.



Trusted partner countries	Pre-approved list of countries to which defence exports are expedited; criteria: strategic alignment, end-use assurances, bilateral defence agreements; likely includes Quad partners + Gulf partners + friendly ASEAN + African partners
India's defence export friction	Previously: MoD (export approval) + MEA (political clearance) + DGFT (export licence) + MHA (dual-use) = 4 clearances, 3-6 months; foreign buyers couldn't wait; they bought from Israel (2-3 weeks), South Korea (3-4 weeks) instead
DGFT (Directorate General of Foreign Trade)	MoCI; issues export licences; dual-use items require special approval; DGFT + MoD integration in simplified SOP = fewer redundant clearances
Competitor benchmark	Israel: Bituach Leumi-backed export finance + Israel Institute of Export's single-window; South Korea: DAPA (Defence Acquisition Programme Administration) export office streamlines; Czech Republic: fast export approvals for small arms; India benchmarking against these
India's defence export portfolio	Fast patrol boats (exported to Mauritius, Sri Lanka, Vietnam), BrahMos (Philippines), Akash SAM (Armenia), small arms (Assam Rifles, INSAS), ammunition, radar systems; OGEL will most benefit high-volume repeat items like ammunition and components

Important Points for UPSC:

- Why export reform matters now: India's defence production is reaching export-ready volumes; Pinaka MBRL, Akash SAM, Astra air-to-air missile, advanced electronics — all have export potential; but without streamlined approvals, even willing buyers get frustrated and turn to established exporters; SOP + OGEL removes the administrative bottleneck
- OGEL and SMEs: Small defence manufacturers (ammunition, components, optical systems) were most hampered by the per-shipment licence requirement; OGEL lets them treat international defence customers like any commercial customer — ship within licence parameters without fresh paperwork; this enables India's defence MSME sector to export
- DPEPP 2020 connection: Defence Production and Export Promotion Policy 2020 set \$5 billion export target; listed measures including export facilitation; this week's SOP + OGEL are the operational implementation of DPEPP's export facilitation chapter — 5 years after the policy, the procedures finally simplified





- End-use monitoring: Simplified export = risk of diversion; India must build end-use monitoring capacity (post-shipment verification); Israel, USA have robust end-use monitoring; India's MoD and MEA need to invest in post-shipment verification infrastructure to accompany SOP simplification – without this, trusted partner list may face pressure from US/Western allies

INDIA-JAPAN: PIYUSH GOYAL'S TOKYO VISIT — SEMICONDUCTORS, AI, INVESTMENT

Ministry: Ministry of Commerce & Industry

PIB Date: 23rd-25th August 2026

Easy Explanation

Commerce and Industry Minister Piyush Goyal led a 200-member business delegation to Japan – one of the largest Indian business delegations to any country – for a packed agenda of bilateral economic engagement. The visit produced multiple outcomes. First: India-Japan Industry Roundtable on Semiconductors and AI in Tokyo – specifically co-chaired by Goyal and his Japanese counterpart, with Japan's major chip companies (Renesas, Rohm, Toshiba, Sony Semiconductor) and India's semiconductor ecosystem (India Semiconductor Mission, Tata, Infosys, Wipro, startups). Key outcome: Japanese companies considering expanding investment in India's chip design and packaging ecosystem following ISM's approval of CG Power-Renesas's ATMP plant in Sanand, Gujarat. Second: India-Japan Investment Partnership – Goyal invited Japanese institutional capital (GPIF – Government Pension Investment Fund, world's largest pension fund at \$1.7 trillion) to invest in Indian infrastructure. Third: India-Japan Startup Roundtable – Japanese VCs and corporates meeting India's startup ecosystem; Japan's SoftBank (already India's largest tech investor) context. Fourth: Indian community in Japan (108,000+ Indians in Japan – growing technology and business diaspora) engagement.

Key Terms:

Term	Definition
India-Japan Semiconductors + AI Roundtable	Tokyo; co-chaired by Goyal + Japanese counterpart; Renesas, Rohm, Toshiba, Sony Semiconductor + India's ISM, Tata, startups; CG Power-Renesas ATMP (Sanand) as anchor; Japanese chip investment in India growing
CG Power-Renesas ATMP	Approved under India Semiconductor Mission; Assembly, Testing, Marking, Packaging plant; Sanand, Gujarat; Renesas (Japanese



| Click to Connect Now.



	chip company) + CG Power (Indian) JV; 40 nm chip packaging; ATMP = downstream of chip fabrication
GPIF (Government Pension Investment Fund)	Japan; world's largest pension fund (\$1.7 trillion AUM); Goyal invited to invest in Indian infrastructure; GPIF already has small India allocation; if GPIF increases India allocation, Japanese institutional capital flows to Indian bonds, REITs, infrastructure
SoftBank context	Japanese multinational; India's largest tech VC investor (\$10+ billion in India: Ola, OYO, Paytm, Delhivery, Meesho); founder Masayoshi Son has met PM Modi multiple times; Startup Roundtable in context of SoftBank's India commitment
India-Japan Semiconductor arc	Week 12: VIHAAN chip using VEGA (IIT Madras); Week 12: 6th PIL includes EW/sensor items; Week 13: Goyal's Tokyo semiconductor roundtable + Japan-India semiconductor investment; India-Japan semiconductor partnership = complementary (Japan = mature chip companies, India = design talent + growing ATMP)
200-member business delegation	One of India's largest outbound business delegations; signals intent for comprehensive Japan engagement; sectors: semiconductors, AI, manufacturing, pharma, infrastructure, food processing; Japanese companies considering India as China+1
Indian diaspora in Japan	108,000+ Indians; growing tech and business community; engineers at Toyota, Honda R&D; IT professionals; Goyal met community = soft power + investment facilitation; Indian professionals in Japan = bridge for investment flows

Important Points for UPSC:

- Japan-India semiconductor complementarity: Japan has mature semiconductor companies (Renesas #1 in automotive chips, TDK in sensors, Sony in image sensors) seeking China+1 manufacturing; India has design talent, a growing ATMP ecosystem, and large domestic market; CG Power-Renesas ATMP is the template for this complementarity
- GPIF significance: If GPIF (world's largest pension fund) increases its India allocation even by 1% – that's \$17 billion flowing to Indian markets; Goyal's invite signals India's confidence in being a sovereign bond and infrastructure asset destination for Japan's most conservative institutional capital





- India-Japan 2+2 + Commerce visit: Same week as 2nd India-NZ Defence Strategic Dialogue; India's diplomatic machine running multiple simultaneous bilateral engagements (Japan commerce, NZ defence, Kuwait defence, Morocco commerce, Cambodia trade) – all in one week; this bandwidth is unprecedented for India's external engagement
- Semiconductor supply chain: India-Japan-USA-Taiwan-South Korea = the non-China semiconductor supply chain that is being assembled; VIHAAN (RISC-V, IIT Madras), ISM (Tata/PSMC, CG Power/Renesas fabs), Goyal's Japan roundtable = India's three-layer semiconductor push (design + manufacturing + international partnerships)

INDIA-CAMBODIA JOINT WORKING GROUP ON TRADE AND INVESTMENT — 3RD MEETING, PHNOM PENH

Ministry: Ministry of Commerce & Industry

PIB Date: 23rd August 2026

Easy Explanation

The 3rd Meeting of the India-Cambodia Joint Working Group on Trade and Investment (JWGTI), held in Phnom Penh, represents India's systematic deepening of trade ties with ASEAN's most rapidly developing economy. Cambodia is often overlooked in India-ASEAN discussions – Vietnam, Indonesia, Singapore, and Malaysia get more attention. But Cambodia has strategic relevance: it sits at the centre of the Mekong sub-region (alongside Laos, Myanmar, Thailand, Vietnam), is growing at 6-7% annually, and has been the manufacturing destination of choice for garment brands shifting from China (Cambodia is the 8th largest garment exporter globally). India-Cambodia bilateral trade is currently modest (~\$700 million) but has significant potential: India exports pharmaceuticals, cotton yarn, machinery; Cambodia exports garments, rubber, processed food. The JWGTI's agenda: reducing non-tariff barriers, mutual recognition of standards (especially for pharma and food), investment facilitation (Indian companies in garments supply chain), and connectivity (India-Cambodia direct cargo routes, which currently go through Singapore or Bangkok, adding cost and time). India's ASEAN engagement follows a hub-and-spoke pattern: Singapore and Vietnam are the hubs; Cambodia, Laos, Myanmar are the spokes being systematically activated.

Key Terms:

Term	Definition
India-Cambodia JWGTI	Joint Working Group on Trade and Investment; 3rd meeting, Phnom Penh; reducing NTBs, standards recognition, investment facilitation, connectivity; India-Cambodia trade ~\$700 million



| Click to Connect Now.



Cambodia's economic profile	8th largest garment exporter globally; China+1 manufacturing for brands like H&M, Gap, Adidas; 6-7% GDP growth; Mekong sub-region centre; improving business environment; tourism recovery post-COVID
Mekong sub-region	Cambodia, Laos, Myanmar, Thailand, Vietnam + China's Yunnan province; Mekong River basin; ASEAN + China competition for influence; India's Act East Policy targets this sub-region through CLMV (Cambodia, Laos, Myanmar, Vietnam) engagement
India's ASEAN trade pattern	India-ASEAN FTA (2010) gave preferential tariffs but India's trade deficit with ASEAN grew; India reviewing ASEAN FTA terms; bilateral JWGTIs like India-Cambodia allow targeted engagement outside the FTA framework
NTBs (Non-Tariff Barriers)	Regulatory barriers beyond tariffs: sanitary/phytosanitary standards, testing requirements, labelling rules, import licensing; India-Cambodia NTBs particularly affect pharma (testing requirements) and food (labelling, certification)
India-Cambodia pharma	India exports generic medicines to Cambodia (contributes to Cambodia's public health); Cambodia's public health system partly dependent on Indian generics; mutual recognition of Indian pharma standards would remove testing duplication
Mekong-Ganga Cooperation (MGC)	India + 5 Mekong countries (Cambodia, Laos, Myanmar, Thailand, Vietnam); tourism, culture, education, transport, trade; India's primary multilateral framework for Mekong sub-region; JWGTI bilateral complements MGC multilateral

Important Points for UPSC:

- ASEAN FTA review context: India withdrew from RCEP (2019) and is reviewing the India-ASEAN FTA (trade deficit grew from \$7 billion to \$45 billion since 2010); bilateral JWGTIs with individual ASEAN states allow targeted market access without the constraints of the broader FTA – bilateral deals where India can negotiate on equal terms
- Cambodia's China challenge: Cambodia is China's closest ASEAN ally diplomatically; China has invested heavily in Cambodia's infrastructure (ports, roads); India's JWGTI engagement is partly to offer Cambodia a diversified economic partnership and reduce its China dependence – India's Act East Policy has this implicit strategic dimension





- Mekong-Ganga Cooperation: India + Cambodia + Laos + Myanmar + Thailand + Vietnam; established 2000; focused on tourism, culture, education, connectivity; MGC gives India a multilateral framework for Mekong sub-region engagement that ASEAN alone doesn't provide
- India's garment supply chain opportunity: Cambodia's garment industry needs yarn, fabric, dyes, machinery; India's textile sector exports these; JWGTI's investment facilitation = Indian textile companies setting up in Cambodia to supply the garment industry = India-Cambodia economic integration through supply chain

INDIA-MOROCCO 7TH JOINT COMMISSION — JITIN PRASADA CO-CHAIRS IN RABAT

Ministry: Ministry of Commerce & Industry

PIB Date: 26th August 2026

Easy Explanation

Morocco is India's gateway to North Africa and the Atlantic coast of the African continent – a role that is structurally unique. Geographically, Morocco sits at the northwest corner of Africa, facing both the Atlantic Ocean and the Mediterranean Sea (it controls the southern entrance to the Strait of Gibraltar alongside Spain). Economically, Morocco has become Africa's fastest-growing auto manufacturing hub (Renault, Stellantis, Peugeot plants that produce 700,000+ vehicles annually for export to Europe), a growing aerospace manufacturing base, and an ambitious green hydrogen producer (Morocco has some of Africa's best solar irradiance + Atlantic coastal wind). India-Morocco bilateral trade is around \$2-3 billion annually, with India importing phosphate (Morocco has 70%+ of world's phosphate reserves – critical for India's fertiliser supply chain) and exporting pharmaceuticals, machinery, and IT services. The 7th Joint Commission is the high-level bilateral mechanism; it covers trade, investment, and cooperation in key sectors. MoS Jitin Prasada co-chaired with his Moroccan counterpart. Outcomes: agricultural cooperation (Morocco's phosphate for India's fertilisers is the core supply chain relationship), green hydrogen collaboration (Morocco's Atlantic coast + India's NGHM), and pharma (Indian generic medicines for Morocco and North Africa).

Key Terms:

Term	Definition
India-Morocco Joint Commission	Bilateral mechanism; 7th meeting; Rabat/Morocco; co-chaired MoS Jitin Prasada + Moroccan counterpart; trade, investment, agriculture, green hydrogen, pharma



| Click to Connect Now.



Morocco's phosphate	70%+ of world's phosphate reserves; OCP Group (Moroccan state company) is world's largest phosphate exporter; India imports phosphate for DAP fertiliser production; India-Morocco phosphate = India's fertiliser security
Strait of Gibraltar	Morocco controls southern entrance alongside Spain; gateway between Atlantic and Mediterranean; maritime chokepoint; India's shipping to Europe passes near Morocco; strategic location
Morocco auto manufacturing	Renault, Stellantis, Peugeot plants; 700,000+ vehicles/year; exported to Europe; integrated into European auto supply chain; Morocco = Africa's manufacturing gateway to Europe; Indian auto component makers could supply Moroccan plants
Morocco green hydrogen	Atlantic coast + Sahara solar = exceptional renewable energy potential; Morocco targeting green hydrogen export to Europe; India-Morocco green H2 collaboration = two NGHM-aligned nations with complementary geography
India-Morocco trade (\$2-3 billion)	India imports: phosphate, processed food, leather, OCP fertilisers; India exports: pharmaceuticals, machinery, IT services, textiles; growing but below potential; 7th Joint Commission targets doubling
Morocco-AfCFTA	Morocco is AfCFTA member (after rejoining African Union in 2017); India-Morocco partnership = gateway to AfCFTA's 54-nation market; Morocco has bilateral FTAs with EU, USA, Arab countries – strategic hub for India's Africa trade

Important Points for UPSC:

- Phosphate = India's agricultural security: India imports ~8 million tonnes of phosphate annually; Morocco supplies 30-40% of this; DAP (Di-Ammonium Phosphate) fertiliser production depends on phosphate; disruption in Morocco supply = India's rabi crop affected; India-Morocco Joint Commission deepens this supply chain relationship
- Morocco-Africa gateway: Morocco rejoined African Union in 2017 (was absent since 1984 over Western Sahara dispute); is now AfCFTA member; Morocco has FTAs with EU, USA, Arab League; setting up in Morocco gives Indian companies access to EU markets (proximity, zero tariffs through Morocco-EU FTA) + Africa; India-Morocco = Africa strategy





- Green hydrogen complementarity: Morocco's IRESEN (Research Institute for Solar Energy) + India's NGHM – both target green hydrogen production; Morocco for European market, India for Asian market; technology collaboration potential; Morocco's green hydrogen projects need investment that India's NTPC, ONGC could provide
- OCP Group: Office Chérifien des Phosphates – Morocco's state phosphate company; world's largest; listed company; India's coromandel, GSFC, IFFCO all buy from OCP; India could take equity stake in OCP to secure phosphate supply – strategic minerals play similar to India-Namibia uranium (Week 11-12)

CSIR-NAL UNVEILS INDIGENOUS MICRO AND SMALL GAS TURBINE ENGINES FOR UNMANNED SYSTEMS

Ministry: Ministry of Science & Technology / CSIR-NAL

PIB Date: 25th August 2026

Easy Explanation

Gas turbine engines are the heart of jet propulsion – whether in a Boeing 787 (Rolls-Royce Trent 1000, 74,000 lbs thrust) or a cruise missile (Williams F107, 600 lbs thrust) or a UAV (small gas turbine, 50-200 lbs thrust). India has long struggled with aero engine technology – the Kaveri engine for the Tejas LCA was abandoned after 30 years of development failing to meet requirements, and India imports virtually all its jet engines (GE, Rolls-Royce, Snecma for IAF; GE for Sukhoi; Adour for Jaguar/Hawk). CSIR-National Aerospace Laboratories (NAL), Bengaluru – India's primary aerospace research laboratory – unveiled this week its indigenous micro and small gas turbine engines for unmanned systems. These are small turbines in the 100-500N (roughly 22-112 lbs) thrust range – not for manned aircraft but for: cruise missiles (Nirbhay requires a turbofan engine; India currently imports Williams F107 from USA); target drones; long-endurance UAVs; loitering munitions. The ability to produce these engines indigenously matters for two reasons: cruise missile supply chain security (India cannot be dependent on US engines for its cruise missile arsenal); and UAV/drone propulsion for the rapidly expanding drone ecosystem (6th PIL, Defence Export SOP this week).

Key Terms:

Term	Definition
CSIR-NAL	National Aerospace Laboratories; Bengaluru; CSIR institute; primary aerospace R&D in India; Saras aircraft (regional transport), HANSA trainer, structural testing for Tejas, now micro gas turbines



| Click to Connect Now.



Micro Gas Turbine (MGT)	Thrust range typically 50-500N (5-50 kg); powered by jet fuel (kerosene, ATF); high power-to-weight ratio; used in: cruise missiles, UAVs, target drones, loitering munitions; more power-dense than electric motors for medium-endurance missions
Nirbhay cruise missile	India's indigenous subsonic cruise missile; 1,000 km range; terrain-hugging; DRDO developed; currently uses William F107-WR-400 turbofan (US); if CSIR-NAL's engine can replace this = full indigenous Nirbhay supply chain
Kaveri engine failure	India's attempt at a complete jet engine for Tejas LCA; GTRE (Gas Turbine Research Establishment) Bengaluru; 30 years, ₹2,500 crore; failed to meet thrust and weight requirements; Tejas uses GE F404 (import); Kaveri remains in development for derivative applications
UAV propulsion	India's drone ecosystem (PLI for drones, Week 10; 6th PIL this week) needs propulsion; electric motors for small drones; gas turbines for medium-long endurance UAVs; CSIR-NAL's turbines fill this gap
Loitering munitions	'Kamikaze drones' – hover, wait, then attack; Israel's Harop (used by India), US Switchblade; need propulsion for loitering + terminal dive; small gas turbine = energy density advantage over electric for 1-4 hour loiter missions
Aero engine indigenisation roadmap	Phase 1: micro turbines for UAVs/missiles (CSIR-NAL, this week); Phase 2: small turbofan for trainer aircraft (GTRE derivative of Kaveri for HTT-40 trainer); Phase 3: complete turbofan for combat aircraft (GTRE Kaveri Mk-2, long-term); India's 20-year engine indigenisation arc

Important Points for UPSC:

- Why gas turbine technology is hard: Turbine blades operate at 1,500°C+ (above metal's melting point) – kept cool by internal air channels and thermal barrier coatings; blade metallurgy (nickel superalloys), aerodynamic design, and manufacturing precision are all at the limit of materials science; few countries (USA, UK, France, Russia, China) have full capability
- Nirbhay indigenisation: India's Nirbhay cruise missile uses US Williams F107 engine; if CSIR-NAL's turbine replaces this = India's cruise missile is fully indigenous; strategic importance: in a conflict with





China (who restricts US exports to India), Nirbhay with US engine = vulnerability; indigenous engine = strategic autonomy

- DRDO-CSIR distinction: DRDO = defence R&D (Kaveri engine, missiles, radars); CSIR = broader S&T including aerospace (NAL); CSIR-NAL's micro turbine work = CSIR entering defence aerospace; shows India's civil aerospace research is being defence-applied – blurring the DRDO-CSIR boundary productively
- Drone propulsion market: India targets 50,000 drones for military + large civilian drone sector; current electric drones have 20-30 minute endurance; gas turbine UAVs can fly 4-8 hours; CSIR-NAL's turbines = make India's medium-endurance military UAVs truly indigenous – propulsion was the last import dependency

SOUTH ASIAN GUT MICROBIOME — UNIQUE CHARACTERISTICS CRITICAL FOR LIFESTYLE DISEASE TREATMENT

Ministry: Ministry of Science & Technology

PIB Date: 25th August 2026

Easy Explanation

The human gut microbiome — the trillions of bacteria, fungi, viruses, and other microorganisms living in the digestive tract — is increasingly recognised as a 'second brain' that influences metabolism, immunity, mental health, and drug response. The problem with most microbiome research: it has been conducted predominantly in Western populations (Europe, North America), and its findings are then applied globally, including in clinical guidelines used in India. A landmark study by Indian scientists, published this week and covered in the PIB's science digest, identifies characteristics of the South Asian gut microbiome that are distinctly different from Western populations — with significant implications for how lifestyle diseases (type 2 diabetes, cardiovascular disease, obesity, non-alcoholic fatty liver disease) should be treated in Indian patients. Key findings: the relative abundance of *Prevotella* (a bacterial genus) vs *Bacteroides* (predominant in Western gut) in South Asian guts; different fermentation patterns producing distinct short-chain fatty acids (SCFAs) that affect insulin sensitivity; and distinct response patterns to probiotics and prebiotics. The practical implication: drug dosing, dietary recommendations, and probiotic interventions that work in Western clinical trials may not work the same way in Indian patients — Indian clinical guidelines need to be built on Indian microbiome data.

Key Terms:

Term	Definition
------	------------





Gut Microbiome	Trillions of microorganisms in digestive tract; bacteria, fungi, viruses, archaea; influences metabolism, immunity, mood, drug response; 'second brain'; South Asian microbiome = distinct from Western in composition and function
Prevotella vs Bacteroides	Two dominant gut bacterial genera; Bacteroides predominant in Western high-fat, high-protein diets; Prevotella predominant in high-fibre, plant-based diets (like traditional Indian diet); South Asian gut has more Prevotella; different metabolic outputs
Short-Chain Fatty Acids (SCFAs)	Produced by gut bacteria fermenting dietary fibre; butyrate, propionate, acetate; butyrate = colon cell energy source + anti-inflammatory; different microbiome compositions produce different SCFA profiles → different insulin sensitivity, inflammation levels
Lifestyle diseases in India	Type 2 diabetes: 10.1 crore Indians; cardiovascular disease: leading cause of death; obesity: rising rapidly; NAFLD: 30%+ of urban Indians; these diseases have microbiome connections – South Asian-specific microbiome data critical for treatment
Drug response variation	Pharmacogenomics: drugs metabolised differently based on genetics + microbiome; Metformin (diabetes drug) effectiveness partly mediated by gut microbiome; South Asian-specific microbiome = Metformin response may differ; dosing guidelines need recalibration
Western-centric research bias	Most clinical trials and microbiome studies in US/European populations; guidelines extrapolated globally; India-specific data = corrects this bias; similar to CSIR's cancer drug (Week 12) trained on Indian patients – 'Indian data for Indian patients' theme
ICMR microbiome research	ICMR's IndiGen programme (genome sequencing of 1,000 Indians); microbiome is the next layer of 'Indian biology'; ICMR + DST funding Indian-specific microbiome studies; this week's study is part of India building its own biological reference data

Important Points for UPSC:

- Indian data for Indian patients: This study connects to Griva Healthcare's AI (trained on Indian cervical images, Week 11) and CSIR-NAL's turbines (Indian aerospace) – a broader theme of India





building science based on Indian data rather than extrapolating Western research; PM's pharma top-5 vision requires this

- Prevotella and Indian diet: Traditional Indian diet is high in dietary fibre (pulses, vegetables, whole grains) which feeds Prevotella; urbanisation → shift to Western diet → microbiome shift → loss of Prevotella dominance → increased lifestyle disease risk; this study provides the biological mechanism for why urban diet transition causes Indian diabetes rates to spike
- Probiotic market implications: India's probiotic market (\$500+ million, growing 15%+ annually); most probiotics are Western strains (Lactobacillus, Bifidobacterium) developed for Western gut; South Asian microbiome study suggests Indian-specific probiotic strains may be needed; Indian biotech companies – Heritage Foods, Mahanagar Milk – opportunity for India-specific probiotics
- ICMR IndiGen + microbiome: ICMR's IndiGen programme sequenced 1,008 Indian genomes; the microbiome is the 'environmental genome' that interacts with genetic genome; combining IndiGen genetic data with microbiome data = comprehensive Indian biological database; needed for precision medicine targeting Indian diseases

ALZHEIMER'S DISEASE — SMART TECHNOLOGY MAKES DIAGNOSIS MORE ACCESSIBLE

Ministry: Ministry of Science & Technology

PIB Date: 25th August 2026

Easy Explanation

Alzheimer's Disease (AD) is a progressive neurodegenerative disorder that is the most common cause of dementia. It affects approximately 4.1 million Indians currently (Alzheimer's and Related Disorders Society of India estimates), with this number projected to reach 7.6 million by 2030 as India's population ages. The diagnostic challenge: definitive AD diagnosis traditionally requires: neuropsychological testing (time-consuming, requires specialists), brain imaging (MRI or PET scans – expensive, not widely available), and cerebrospinal fluid biomarkers (lumbar puncture – invasive). In India, the majority of AD cases go undiagnosed or are diagnosed only in late stages because these tools are concentrated in tertiary care hospitals in metros. Indian scientists, supported by the Ministry of Science & Technology's research funding, developed a 'smart diagnostic technology' for AD that combines: blood-based biomarkers (detecting amyloid-beta and tau proteins in blood – non-invasive, can be done at district hospital level); AI analysis of speech patterns (AD affects language early – AI detecting characteristic speech changes); and digital cognitive tests on a tablet. This multi-modal approach achieves sensitivity and specificity comparable to CSF biomarker testing at a fraction of the cost and invasiveness. The technology is designed for deployment at the primary



| Click to Connect Now.



and secondary care level – district hospitals, community health centres – making AD screening accessible beyond tertiary care.

Key Terms:

Term	Definition
Alzheimer's Disease (AD)	Progressive neurodegenerative disorder; most common dementia cause; 4.1 million Indians (2024), 7.6 million projected by 2030; characterised by amyloid plaques and tau tangles in brain; no cure but early diagnosis = better quality of life management
Smart diagnostic technology	Multi-modal: blood biomarkers (amyloid-beta, tau) + AI speech analysis + digital cognitive tests; comparable accuracy to invasive CSF testing; designed for district hospital level deployment; non-invasive and affordable
Amyloid-beta and tau	AD biomarkers; amyloid-beta = protein that forms plaques outside neurons; tau = protein that forms tangles inside neurons; both disrupt neural function; detectable in blood and CSF; blood-based detection = non-invasive screening
Cognitive testing	Mini-Mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA) = standard cognitive tests; time and specialist-intensive; digital tablet cognitive tests = standardised, quick, deployable without neurologist
India's aging population	India's 60+ population: 14 crore (2024) → 23 crore (2036); 80+ population growing fastest; AD prevalence increases with age (3% at 65-74, 17% at 75-84, 32% at 85+); India faces an AD wave requiring accessible diagnostics now
AI speech analysis	AD affects language: word-finding difficulty, reduced vocabulary, sentence structure changes; AI trained on speech samples detects these changes earlier than cognitive tests; non-invasive, can be done via phone call or recorded conversation
ARDSI (Alzheimer's and Related Disorders Society of India)	India's primary AD awareness and support organisation; 4.1 million estimate; works with AIIMS, regional hospitals; new diagnostic technology will work with ARDSI's community network for early screening rollout





Important Points for UPSC:

- India's neurodegenerative disease burden: AD + Parkinson's + other dementias = growing crisis; India's healthcare system is not prepared for aging-related disease surge; early diagnosis tools like this = critical infrastructure for India's 2030-2047 healthcare planning; NMHP (National Mental Health Policy 2014) includes dementia
- Blood biomarker revolution: CSF biomarkers required lumbar puncture (spinal tap) – invasive, specialist-only; plasma amyloid-beta assays (from blood) are now being validated globally; India's technology adds AI + cognitive tests = comprehensive non-invasive battery; this is India joining the global biomarker-based AD diagnosis movement
- Dementia in India policy gap: India's National Programme for Healthcare of Elderly (NPHCE) includes dementia but implementation is weak; ayurvedic treatments (Brahmi, Ashwagandha) used traditionally for memory but not evidence-based for AD; this smart technology offers the first scalable biomarker-based early detection pathway for India

INDIA RESTORED 21.76 MILLION HA OF LAND (2011-2020) — 1.22 BILLION PERSON-DAYS AT UNCCD COP17

Ministry: Ministry of Environment, Forest and Climate Change

PIB Date: 24th August 2026

Easy Explanation

At UNCCD COP17 in Ulaanbaatar, Environment Minister Bhupender Yadav presented a landmark achievement: India restored 21.76 million hectares of degraded land between 2011 and 2020 – generating 1.22 billion person-days of employment in the process. To contextualise: 21.76 million hectares is approximately the size of the United Kingdom. India's Land Degradation Neutrality (LDN) commitment under the UNCCD is to restore 26 million hectares by 2030 – the 21.76 million achieved by 2020 puts India ahead of schedule. The restoration activities that generated these numbers: afforestation and reforestation (Forest Survey of India data shows India added 2,261 sq km of forest cover annually on average in this period); watershed development (MGNREGA activities including check dams, bunding, plantation on wastelands); agro-forestry expansion (trees on farm boundaries, combined farming + forestry); wetland restoration (mangroves, inland wetlands under the National Wetlands Conservation Programme); and grassland restoration (significantly under-counted historically – the new Grasslands Guide from Week 12 will improve this measurement). The employment generation figure (1.22 billion person-days) is striking – it demonstrates that land restoration is not just environmental policy but also rural employment policy, with MGNREGA as the primary delivery mechanism.



**Key Terms:**

Term	Definition
21.76 million hectares restored (2011-2020)	~UK-sized area; afforestation, watershed development, agro-forestry, wetland + grassland restoration; MGNREGA as primary instrument; FSI (Forest Survey of India) data; ahead of 26 mn ha by 2030 LDN target
LDN (Land Degradation Neutrality)	UNCCD concept; no net land degradation by 2030; India committed under Bonn Challenge; balance: land degraded = land restored; 21.76 mn ha restored compensates for degradation from mining, urbanisation, agriculture
1.22 billion person-days employment	MGNREGA's land restoration works (check dams, bunding, plantation) generate employment; land restoration = environmental + social policy; rural employment + ecological restoration simultaneously – co-benefit that India explicitly presents at UNCCD
MGNREGA as LDN instrument	Mahatma Gandhi National Rural Employment Guarantee Act; 100 days guaranteed employment; 14 types of permissible works include watershed, plantation, land development; 9 crore+ unique persons worked in MGNREGA in 2024-25; India's primary land restoration delivery mechanism
Bonn Challenge	Global voluntary commitment to restore 350 million hectares by 2030; India committed 26 million hectares (among world's largest commitments); India's 21.76 mn ha by 2020 = 84% of commitment with 10 years still to go
FSI (Forest Survey of India)	Biennial forest cover assessment; State of Forest Report (SFR); satellite-based mapping; India's forest cover 21.7% of land area (SFR 2023); mangrove cover = 4,992 sq km; open forest + dense forest trends
Mangrove connection	India has 4,992 sq km of mangroves (3rd largest in world); Blue Carbon ecosystem; restored mangroves sequester carbon + protect coasts + support fisheries; National Mangrove Conservation Programme + MISHTI (Mangrove Initiative for Shoreline Habitats and Tangible Incomes) scheme





Important Points for UPSC:

- 26 million hectares LDN commitment: India's pledge at Rio+20 and formalised under UNCCD; 21.76 mn ha by 2020 + remaining 4.24 mn ha by 2030; India is on track; the 2020 achievement presented at UNCCD COP17 builds India's credibility as a land stewardship leader
- MGNREGA and environment: MGNREGA is usually discussed as employment policy; this data shows it is also India's largest environmental restoration programme; 1.22 billion person-days = MGNREGA's environmental dividend; when critics say MGNREGA is wasteful, the land restoration output challenges that – productive environmental work
- India's three Rio Convention performance: CBD (biodiversity – 30x30 Kunming framework, grasslands guide, tiger recovery), UNFCCC (NDC – 300 GW non-fossil, net zero 2070), UNCCD (LDN – 21.76 mn ha restored); India performing credibly across all three Rio Conventions; UNCCD COP17 data is the UNCCD pillar
- Ulaanbaatar context: UNCCD COP17 in Mongolia = a grassland/steppe ecosystem nation; India's grasslands guide (Week 12) + land restoration data (this week) = India's comprehensive UNCCD contribution; Mongolia + India both have vast open ecosystems; shared interest in grassland restoration governance

COMMUNITY-LED RANGELAND RESTORATION AT UNCCD COP17 – INDIA'S CALL

Ministry: Ministry of Environment, Forest and Climate Change

PIB Date: 26th August 2026

Easy Explanation

Continuing India's strong presence at UNCCD COP17 (grasslands guide, Week 12; land restoration data, 24th Aug), India's Environment Minister called specifically for 'community-led restoration of rangelands' – a targeted intervention in one of the most politically charged aspects of land governance globally. Rangelands are land areas dominated by grasses, shrubs, and other non-tree vegetation used primarily for livestock grazing – they overlap significantly with what India calls 'grasslands' and 'revenue wastelands'. Globally, rangelands cover approximately 50% of the Earth's land surface and support the livelihoods of 1 billion+ people, many of them pastoralists (India's Rabari, Maldhari, Van Gujjar, Gujjar-Bakkarwal, Dhangars). The call for 'community-led' restoration is significant because: top-down restoration (government planting trees, creating protected areas) has often displaced pastoral communities from rangelands they managed for centuries; community-led restoration = giving Rabari and Maldhari communities formal rights and responsibilities over rangeland restoration – they know the land best; it connects to India's Forest Rights Act



| Click to Connect Now.



2006 (community forest resource rights = communities as conservation managers); and it positions India as a champion of community rights in global environmental governance – against the 'fortress conservation' model (protected areas without communities) that has been criticised for displacing indigenous and forest-dwelling communities.

Key Terms:

Term	Definition
Rangelands	Land dominated by grasses, shrubs, non-tree vegetation; used for livestock grazing; 50% of Earth's land surface; 1 billion+ pastoral livelihoods; overlap with India's grasslands and 'revenue wastelands'
Community-led restoration	Pastoral communities (Rabari, Maldhari, Van Gujjar, Gujjar-Bakkarwal) as restoration managers; they have centuries of traditional ecological knowledge (TEK); formal rights + responsibilities; opposite of top-down government planting
Fortress conservation	Conservation model that excludes communities from protected areas; Project Tiger historically used this (relocation of forest dwellers from tiger reserves); globally criticised for displacement; India's rangeland call explicitly contrasts with this
Pastoral communities in India	Rabari (Kutch, Rajasthan – camel, cattle herders), Maldhari (Gir, Saurashtra – buffalo), Van Gujjar (Uttarakhand – nomadic buffalo herders), Gujjar-Bakkarwal (J&K/HP – sheep, goat), Dhangar (Maharashtra – sheep); traditionally managed rangelands for centuries
FRA 2006 community rights	Community Forest Resource (CFR) rights under FRA 2006; communities can manage, protect, and use their traditional forests and grasslands; CFR rights = legal basis for community-led restoration; PMJVM (Week 12 Backgrounder) converges with FRA
Traditional Ecological Knowledge (TEK)	Knowledge accumulated by indigenous communities about local ecosystems; seasonal grazing patterns, water points, grass species, rangeland carrying capacity; Rabari's TEK about Banni grasslands = irreplaceable for Banni restoration; UNCCD increasingly recognises TEK



**UNCCD Rangelands****Decision**

UNCCD has been developing specific guidance on rangelands since COP14; India's call at COP17 pushes for a binding or strong voluntary framework on community rights in rangeland restoration; aligns with Kunming-Montreal's community rights provisions in biodiversity

Important Points for UPSC:

- Banni grasslands case study: Banni (Kutch, Gujarat) = India's largest tropical grassland; historically managed by Maldhari community for centuries; after 1970s, government afforestation (Prosopis juliflora – invasive species) destroyed native grass; Maldhari's rangeland degraded; community-led restoration = removing Prosopis, restoring native grasses with Maldhari as managers
- FRA 2006 + rangeland restoration: CFR rights give communities legal control over their traditional land; India's call at UNCCD COP17 is asking other countries to adopt FRA-like community rights frameworks; India presenting its domestic law as global model for community-led land restoration
- UNCCD + CBD linkage: Rangeland restoration = biodiversity (GIB habitat, grassland birds, Blackbuck) + land degradation + climate (rangelands store significant soil carbon); India connecting all three Rio Conventions in its UNCCD presentation = integrated ecosystem approach
- India's COP17 arc: Grasslands Guide launch (22nd Aug Week 12 – identifying rangelands as ecosystems), Land restoration 21.76 mn ha (24th Aug – quantifying India's restoration), Community-led rangelands call (26th Aug – advocating for the restoration approach); three-act India narrative at UNCCD COP17

UPI COMPLETES 10 YEARS — WORLD'S LARGEST REAL-TIME PAYMENT SYSTEM

Ministry: Ministry of Finance / NPCI

PIB Date: 24th-25th August 2026

Easy Explanation

The Unified Payments Interface was launched in April 2016. By August 2026, it handles over 1,000 crore (10 billion) transactions per month worth ₹20+ lakh crore – making it the world's largest real-time payment system by volume, handling more real-time payments than the USA, Europe, China, and the UK combined. UPI's 10th anniversary (approximate – the April 2016 launch was celebrated with a week of events in August 2026 given the Independence Day + BRICS week cluster) was marked by PM Modi inviting citizen UPI experiences, PIB releasing a comprehensive Backgrounder, and the Finance Minister highlighting UPI as India's greatest



| Click to Connect Now.



digital public infrastructure achievement. The numbers: 300+ banks on UPI; 500+ million registered users; ₹20+ lakh crore monthly value (roughly India's entire monthly economic output in payments); zero MDR (merchant discount rate) for merchants since January 2020; 17+ countries with UPI payment interoperability; PhonePe + Google Pay together 80%+ market share; UPI Lite for offline small payments; UPI 123PAY for feature phones. The PM's call for citizen UPI stories generated massive social media engagement — a deliberate narrative strategy to connect financial infrastructure to everyday Indian experience.

Key Terms:

Term	Definition
UPI at 10 — key numbers	1,000 crore+ transactions/month; ₹20 lakh crore+ monthly value; 500 million+ registered users; 300+ banks; zero MDR; 17+ countries; PhonePe + Google Pay 80%+ share; UPI Lite + 123PAY extensions
Zero MDR (since January 2020)	No merchant discount rate for UPI and RuPay debit; ₹1,500 crore government compensation scheme (FY2026-27) for banks; mass merchant adoption because zero cost; fundamental reason for UPI's volume dominance
UPI's 10-year journey	2016: 4 banks, proof of concept → 2018: 1 billion monthly transactions → 2020: 2.23 billion → 2022: 7.4 billion → 2024: 12+ billion → 2026: 14+ billion (annualised); exponential adoption curve driven by Jio cheapening data + COVID digital push
UPI Lite	For transactions below ₹500; near-offline, NFC-based; pre-loaded balance; no PIN required; reduces server load; extends UPI to low-connectivity areas; 2022 launch
UPI 123PAY	For feature phones (without internet); uses IVR (Interactive Voice Response) voice calls; 3 steps to transact; reaches 40+ crore feature phone users; financial inclusion at the last mile
Global UPI expansion	Singapore (PayNow), UAE, France (Lyf Pay), Nepal, Bhutan, Malaysia, Mauritius, Sri Lanka, Qatar (this week, PosTransfer, Week 13); 17+ countries; NPCI International manages; PM Modi has promoted UPI at G20, Quad, BRICS
PIB Backgrounder: UPI	Comprehensive policy document on UPI's transformative impact; covers: financial inclusion, merchant ecosystem, remittances, GDP





contribution, export of DPI model; UPSC Backgrounder = testable policy details

Important Points for UPSC:

- UPI's GDP contribution: RBI estimates UPI saves India 0.3-0.5% of GDP annually in cash handling costs (printing, transportation, losses); additionally, formalising transactions increases tax compliance; UPI's economic value is far beyond the convenience narrative
- NPCI's structure: National Payments Corporation of India; Section 8 (not-for-profit) company owned by a consortium of banks (RBI + 10 major banks as promoters); NPCI International Payments Ltd = subsidiary for international UPI; NPCI also operates: IMPS, NACH, AePS, RuPay, FASTag, NETC – India's payment infrastructure company
- PhonePe-Google Pay duopoly and 30% cap: NPCI set 30% market share cap for third-party UPI apps to prevent monopoly; PhonePe (~48%) + Google Pay (~36%) together = 84% = NPCI's 30% cap unenforceable; NPCI extended implementation deadline repeatedly; regulatory failure in a zero-cost ecosystem
- UPI and JAM Trinity evolution: Jan Dhan (account) + Aadhaar (identity) + Mobile (connectivity) → JAM enabled DBT; UPI added frictionless payment on top of JAM; CBDC (₹, Week 12) adds programmable money; JAM → JAM+UPI → JAM+UPI+CBDC = India's progressive digital financial infrastructure stack

PM JAN DHAN YOJANA — 12 YEARS, 53+ CRORE ACCOUNTS, ₹2.3 LAKH CRORE DEPOSITS

Ministry: Ministry of Finance

PIB Date: 28th August 2026

Easy Explanation

28th August 2026 marks the 12th anniversary of PM Jan Dhan Yojana (PMJDY), launched 28 August 2014. PMJDY is India's flagship financial inclusion programme – and by any measure, one of the world's most successful financial inclusion programmes ever. The numbers at 12 years: 53+ crore accounts (530 million); ₹2.3 lakh crore total deposits; 55% of accounts held by women; 67% in rural/semi-urban areas; zero minimum balance requirement; RuPay debit card with ₹2 lakh accident insurance for all account holders; ₹30,000 life insurance (PMJJBY for those meeting criteria); and overdraft facility of ₹10,000 for eligible account holders. PMJDY transformed the financial landscape: before 2014, 145 million Indian households had no bank account; today virtually every adult Indian has access to a formal account. PMJDY's impact is



| Click to Connect Now.



most visible in what it enabled: DBT (Direct Benefit Transfer) directly to beneficiary accounts — eliminating middlemen; PM-KISAN ₹6,000/year to farmers directly; PMJJBY and PMSBY insurance premiums auto-debited; PM-CARES Fund donations during COVID; MGNREGA wages. Without PMJDY accounts, none of these would have been possible at scale.

Key Terms:

Term	Definition
PMJDY at 12 — key numbers	53+ crore accounts; ₹2.3 lakh crore deposits; 55% women account holders; 67% rural/semi-urban; zero minimum balance; RuPay debit card + ₹2 lakh accident insurance; ₹10,000 overdraft facility
Pre-2014 financial exclusion	145 million households unbanked; informal credit at 30-60% annual interest rates; government subsidies lost to leakage; wages paid in cash with 20-30% diversion; PMJDY solved all of these simultaneously
RuPay debit card	India's domestic card network (NPCI); issued with every PMJDY account; accepted at all ATMs and PoS terminals; ₹2 lakh accident insurance linked; zero MDR for transactions; NPCI's card competing with Visa/Mastercard
DBT backbone	Direct Benefit Transfer depends on bank accounts; PM-KISAN (9.3 crore farmers), PMJJBY/PMSBY (insurance), MGNREGA wages, LPG subsidy — all use PMJDY accounts; ₹38+ lakh crore transferred via DBT since 2013
55% women account holders	PMJDY's gender dimension: women historically excluded from banking; 55% women = 29+ crore women now with own bank account; financial autonomy for women; PMJJBY (₹436/year life insurance) particularly significant for women
JAM Trinity anchor	Jan Dhan = 'J' in JAM (Jan Dhan-Aadhaar-Mobile); JAM is the foundation of India's entire welfare delivery system; without PMJDY accounts, UPI wouldn't have the base, DBT wouldn't work, financial inclusion would be theoretical
PIB Backgrounder: PMJDY 12 years	Comprehensive policy document; covers financial inclusion metrics, DBT impact, gender dimension, rural banking, overdraft facility; UPSC Backgrounder = policy details directly testable





Important Points for UPSC:

- PMJDY vs bank-led financial inclusion: Before PMJDY, bank-led financial inclusion (no-frills accounts since 2005) was slow – fewer than 25% of population banked by 2014; PMJDY's state-driven, mission-mode approach with Jan Dhan Melas, door-to-door enrolment, and PM's 2014 address achieved in months what a decade of gradual banking couldn't
- Zero balance significance: Traditional accounts require minimum balance (₹1,000-10,000); poor people couldn't maintain minimum balance → accounts dormant → excluded; PMJDY's zero minimum balance = true inclusion; 53 crore accounts means 53 crore people who can receive government transfers digitally
- Overdraft facility: ₹10,000 overdraft for PMJDY accounts (for eligible holders with 6-month account history); this is India's version of micro-credit at zero collateral; small trader, small farmer can bridge temporary cash need without going to moneylender at 36% annual interest; significant poverty-alleviation instrument
- PMJDY and COVID: During COVID-19 lockdown, PM Garib Kalyan Yojana transferred ₹500/month directly to 20 crore women PMJDY holders – this worked only because PMJDY accounts were in place; without PMJDY, lockdown cash support would have been physically impossible at this scale

CRITICAL MINERALS INNOVATION HACKATHON 2026 – MINES MINISTER LAUNCHES

Ministry: Ministry of Mines

PIB Date: 25th August 2026

Easy Explanation

The Critical Minerals Innovation Hackathon 2026, launched by Union Mines Minister G. Kishan Reddy, is a competition inviting startups, researchers, and innovators to solve India's critical minerals challenges across five tracks: downstream processing (converting mined ore to battery-grade material), recycling and urban mining (extracting critical minerals from e-waste), substitute materials (developing alternatives to reduce dependence on any single critical mineral), critical mineral mapping (AI/ML-based identification of mineral deposits from remote sensing data), and value chain digitisation (blockchain-based supply chain tracking for critical minerals). The hackathon connects directly to several recent policy developments: MMDR Amendment Act 2026 (Week 12) streamlined critical mineral auctions; Sintered REPM scheme (Week 11) is trying to build domestic REPM manufacturing; India-Namibia JTC (Week 11) and India-SACU PTA ToR (Week 11) are building upstream supply; and Critical Minerals Mission (announced Budget 2024-25) provides the policy



| Click to Connect Now.



framework. The hackathon adds the innovation layer – technology solutions for processing and recycling that can reduce import dependence even without full domestic mining capability.

Key Terms:

Term	Definition
Critical Minerals Innovation Hackathon 2026	Ministry of Mines; 5 tracks: downstream processing, recycling/urban mining, substitute materials, critical mineral mapping (AI/ML), value chain digitisation; startups, researchers, innovators eligible
5 Tracks explained	Processing: ore → battery-grade material; Recycling: e-waste → minerals; Substitutes: alternative materials; Mapping: AI from satellite data; Digitisation: blockchain supply chain; each track addresses different critical mineral value chain bottleneck
Critical Minerals Mission (Budget 2024-25)	India's comprehensive policy for critical minerals: acquisition of overseas assets, domestic exploration, processing capacity, recycling; MMDR 2026 = regulatory arm; hackathon = innovation arm; ISM = manufacturing arm
Urban Mining	Extracting critical minerals from e-waste (lithium from old phones, cobalt from EV batteries, rare earths from hard drives); India generates 3.2 million tonnes of e-waste annually (3rd largest globally); currently 95% informal recycling sector; hackathon seeks formal technology solutions
AI/ML mineral mapping	Satellite remote sensing data (hyperspectral imaging) + AI/ML = identifying mineral deposit signatures from surface; GSI (Geological Survey of India) has remote sensing data; AI-based mapping could identify deposits faster than ground surveys
Substitute materials	If lithium prices spike, sodium-ion batteries substitute; if cobalt is scarce, LFP (lithium iron phosphate) batteries substitute; research into substitutes reduces strategic vulnerability even without full domestic supply; hackathon funds this R&D
Critical Minerals Mission + MMDR 2026	Regulatory (MMDR Amendment) + institutional (Critical Minerals Mission) + manufacturing (REPM scheme) + innovation (hackathon) = India's multi-layer critical minerals strategy; comprehensive approach across all value chain stages



Important Points for UPSC:

- India's critical minerals list: 30 minerals identified (2023); lithium, cobalt, nickel, graphite, rare earth elements, vanadium, titanium, selenium, tellurium; EV + clean energy + defence applications; India imports 100% of lithium, cobalt, nickel for battery manufacturing – complete import dependence
- Urban mining opportunity: India's 3.2 million tonnes e-waste/year contains recoverable lithium, cobalt, gold, silver, copper, rare earths; informal sector recovery = 40-50% efficiency + worker health risk; formal urban mining with proper technology = 95%+ recovery + worker safety + a domestic recycled mineral supply; hackathon's recycling track addresses this
- AI mineral mapping and GSI: GSI (Geological Survey of India) has accumulated decades of geological survey data including remote sensing; AI/ML can reanalyse this data to find deposits that human analysts missed; India has significant unexplored territory in Northeast, Rajasthan, Odisha; AI mapping could double known critical mineral reserves without new field work
- Blockchain supply chain: Critical mineral supply chains are opaque and prone to conflict minerals (cobalt from DRC with child labour concerns); blockchain-based tracking = end-to-end verified supply chain; EU's Critical Raw Materials Act requires supply chain due diligence; India's exporters need blockchain verification to sell to EU

GNANI ARTHA — VICE PRESIDENT LAUNCHES INDIA'S SOVEREIGN AI STACK (EVON 3.3 + PLEXUS)

Ministry: Vice President's Secretariat / Ministry of Electronics & IT

PIB Date: 28th August 2026

Easy Explanation

Vice President Radhakrishnan launched 'Gnani Artha' – described as India's sovereign AI stack – comprising two components: Evon 3.3 and Plexus. 'Gnani' means 'wise' or 'knowledgeable' in Sanskrit/Tamil; 'Artha' means 'wealth' or 'meaning'. The name signals a specifically Indian framing of AI – knowledge-as-wealth, connecting to Arthashastra (Kautilya's treatise on statecraft and political economy). Evon 3.3 appears to be a large language model (LLM) optimised for Indian contexts – likely trained on Indian language data (connecting to BHASHINI's 22-language corpus, Week 11) and Indian regulatory/governance frameworks. Plexus appears to be an AI orchestration layer – infrastructure that allows multiple AI models to work together on complex tasks (similar to how an orchestra needs a conductor alongside the individual musicians). The 'sovereign' descriptor is significant: it signals that this AI stack is domestically controlled, not dependent on US tech companies (OpenAI GPT, Google Gemini, Anthropic Claude), and presumably can be used for sensitive government functions (defence analytics, intelligence, classified data processing) where



| Click to Connect Now.



using foreign AI would be a security risk. This connects to India's AI governance framework, IndiaAI Mission (₹10,372 crore), and BharatGen (the government LLM announced under IndiaAI Mission).

Key Terms:

Term	Definition
Gnani Artha	India's sovereign AI stack; VP Radhakrishnan launches; 'Gnani' = wise/knowledgeable (Sanskrit/Tamil), 'Artha' = wealth/meaning; two components: Evon 3.3 (LLM) + Plexus (orchestration layer)
Evon 3.3	Likely a large language model (LLM) for Indian contexts; possibly trained on BHASHINI's 22-language corpus + Indian governance data; 3.3 = version number suggesting earlier iterations; 'sovereign' = domestically controlled
Plexus	AI orchestration layer; allows multiple AI models to work together on complex tasks; similar to LangChain (open-source) or enterprise AI orchestration platforms; enables multi-model workflows for government use cases
Sovereign AI	AI systems domestically developed, trained, and controlled; not dependent on foreign companies; critical for: defence applications (AI for classified data), intelligence analysis, sensitive government data processing; also data sovereignty (government data doesn't leave Indian servers)
BharatGen connection	IndiaAI Mission's BharatGen project = India's own LLM for 22 languages; Gnani Artha may be the operational deployment of BharatGen + orchestration; or may be a separate initiative; VP launch suggests high-level government backing
IndiaAI Mission (₹10,372 crore)	7 pillars: AI compute, research, datasets (AIKosh), AI in governance, skilling, startups, safe AI; Gnani Artha = AI in governance pillar + potentially research; sovereign AI = reducing foreign AI dependency in critical government functions
Arthashastra framing	Kautilya's Arthashastra = India's 4th century BCE treatise on governance, economics, statecraft; 'Gnani Artha' name invokes this legacy = AI for governance in the Arthashastra tradition; deliberate cultural framing of sovereign AI





Important Points for UPSC:

- Sovereign AI imperative: India's defence, intelligence, and sensitive government data cannot be processed on US-company AI (OpenAI, Google) – these companies are subject to US law (CLOUD Act allows US government access); sovereign AI = government data processed on Indian-controlled servers using Indian-developed models
- BharatGen vs Gnani Artha: BharatGen = IndiaAI Mission's multilingual LLM (announced, in development); Gnani Artha = operational sovereign AI stack (launched this week); they may be the same system at different stages of deployment, or complementary systems; the detail will clarify as more information emerges
- AI orchestration significance: Modern AI governance use cases require multiple models working together – a sovereign AI that translates (BHASHINI), reasons (LLM), accesses government data (RAG), and takes actions (agents); Plexus as orchestration layer = the connective tissue that makes AI work across these components
- VP's role: VP Radhakrishnan has been India's technology-launch VP – he launched Gnani Artha this week and recently launched India's first non-GMO popcorn maize hybrid; the VP's involvement = political endorsement at near-PM level without PM's time investment; signals priority without making PM personally accountable for a potentially controversial AI deployment

PARIVARTAN SCHEME — EV FINANCING FOR COMMERCIAL VEHICLE OWNERS, DELHI-NCR

Ministry: Ministry of Road Transport & Highways

PIB Date: 28th August 2026

Easy Explanation

PARIVARTAN (which means 'transformation' in Hindi) is a scheme designed specifically to help commercial vehicle owners in Delhi-NCR – auto-rickshaw drivers, small goods vehicles operators, school bus owners – transition from older polluting vehicles to electric vehicles by providing access to EV financing. The problem it addresses: old commercial vehicles (BS-III, pre-2015) are the most polluting segment of Delhi's vehicular fleet and are subject to CAQM's ban (Week 12 article on CAQM LGV mandate). But their owners are often daily-wage workers or small entrepreneurs who cannot afford EVs upfront. PARIVARTAN bridges this gap: it onboards banks, NBFCs, and auto OEMs onto a single platform, streamlines the loan application process, and connects vehicle owners with financing. At 1 year of the scheme's restructuring milestone: 1,300+ beneficiaries registered; 42 banks/NBFCs onboarded (including public sector banks, private banks, and microfinance institutions); 15 auto OEMs onboarded (Tata Motors EV, Mahindra Last Mile, Piaggio, Hero Electric); and a digital marketplace for EV-for-commercial-use loans. PARIVARTAN is Delhi-NCR specific



| Click to Connect Now.



because of CAQM's air quality regulations, but MoRTH is considering extending it nationally as part of FAME-III (Faster Adoption and Manufacturing of Electric Vehicles, Phase III).

Key Terms:

Term	Definition
PARIVARTAN scheme	MoRTH; EV financing for commercial vehicle owners in Delhi-NCR; old polluting vehicles → EVs; connects banks/NBFCs + auto OEMs on single platform; 1,300+ beneficiaries, 42 banks/NBFCs, 15 OEMs
Target beneficiaries	Auto-rickshaw drivers, LGV operators, school bus owners, e-rickshaw operators; daily-wage workers and small entrepreneurs; upfront EV cost unaffordable; PARIVARTAN provides access to structured financing at lower rates
CAQM connection	CAQM's LGV mandate (Week 12) orders BS-III/IV → BS-VI/EV shift; without financing, LGV owners cannot comply; PARIVARTAN = the financial instrument that makes CAQM's regulatory mandate executable for small vehicle owners
42 banks/NBFCs onboarded	Public sector (SBI, PNB, Bank of Baroda), private (HDFC, ICICI, Axis), NBFCs (Mahindra Finance, Sundaram Finance), microfinance; diverse lender spectrum = matches borrower credit profile; MFIs for those without formal credit history
15 auto OEMs onboarded	Tata Motors EV, Mahindra Last Mile, Piaggio (Ape electric), Hero Electric, Greaves Electric, Ather Energy (for two-wheelers), others; OEMs offer fleet discounts and service packages through PARIVARTAN platform
FAME scheme connection	FAME-I (2015-2019, ₹895 crore), FAME-II (2019-2024, ₹10,000 crore, demand incentives for EVs); FAME-III expected; PARIVARTAN complements FAME by addressing financing gap rather than just demand subsidy
Delhi-NCR EV push	Delhi has separate EV policy (2020); free registration for EVs, road tax waiver, purchase incentive; CAQM + Delhi EV policy + PARIVARTAN = three-layer intervention for Delhi's commercial EV transition





Important Points for UPSC:

- FAME-III anticipation: FAME-II expired March 2024; FAME-III expected with ₹15,000-20,000 crore; focus likely on commercial EVs (buses, two-wheelers for delivery, three-wheelers) rather than passenger cars; PARIVARTAN in Delhi-NCR = piloting the financing model that FAME-III will scale nationally
- Small vehicle owner economics: An auto-rickshaw driver earning ₹600-800/day (net after fuel) would see fuel savings of ₹200-300/day with EV (electricity cheaper than CNG); but EV auto costs ₹3-4 lakh vs CNG auto ₹2-2.5 lakh; PARIVARTAN's lower-rate financing + fuel savings = EV becomes economically rational over 3-4 years
- Air quality impact: Commercial vehicles (autos, LGVs, buses) are 35-40% of Delhi's vehicular PM2.5 emissions but only 15% of vehicle count – disproportionate impact; converting commercial fleet to EV = largest single category air quality improvement; PARIVARTAN is Delhi's air quality policy in financing form

MALARIA ELIMINATION — INDIA REVIEWS PROGRESS TOWARD 2030 TARGET

Ministry: Ministry of Health and Family Welfare / NVBDCP

PIB Date: 28th August 2026

Easy Explanation

India's malaria elimination target — zero indigenous malaria cases by 2030 — is one of the most ambitious public health commitments India has made, and one with significant global significance given that India accounts for approximately 2% of global malaria cases (and had 6.4 million cases in 2000 — making the journey to elimination genuinely remarkable). The Union Health Ministry's review this week presented progress data and identified remaining challenges. Progress: India reported 2.1 million malaria cases in 2025 (down from 6.4 million in 2000 and 1.57 lakh deaths in 2000 vs 7,000 in 2025); several states (Odisha, which accounted for 40% of India's malaria burden in 2005, now contributes under 20%); and 11 states/UTs have achieved zero indigenous transmission in consecutive years. Remaining challenges: Plasmodium falciparum (more dangerous malaria species — causes cerebral malaria and death) accounts for 50%+ of cases; tribal belt (Jharkhand, Chhattisgarh, MP, Odisha, northeast) remains high-transmission; climate change is extending the geographic range of Anopheles mosquitoes; and drug-resistant malaria emerging near Myanmar border.

Key Terms:



| Click to Connect Now.



Term	Definition
Malaria elimination target	Zero indigenous malaria cases by 2030; National Framework for Malaria Elimination (NFME) 2016-2030; Elimination = zero indigenous cases for 3 consecutive years; India had 6.4 million cases (2000) → 2.1 million (2025) → target: zero by 2030
NVBDCP (National Vector Borne Disease Control Programme)	MoHFW; controls malaria, dengue, chikungunya, kala-azar, filariasis, Japanese encephalitis; Integrated Vector Management (IVM) approach; National Malaria Elimination Programme (NMEP)
Plasmodium falciparum vs vivax	Two main malaria species: <i>P. falciparum</i> (dangerous – cerebral malaria, death; 50%+ of India's cases) and <i>P. vivax</i> (milder but relapses – persists in liver; 50%-). Elimination requires controlling both; <i>P. vivax</i> harder to eliminate due to relapsing liver stage
Anopheles mosquito	Malaria-transmitting mosquito; <i>Anopheles culicifacies</i> (main vector in plains), <i>A. fluviatilis</i> (hilly areas), <i>A. minimus</i> (northeast); climate change extending range northward and to higher altitudes; vector control = bed nets (ITN/LLIN) + indoor residual spraying (IRS)
Tribal belt challenge	Jharkhand, Chhattisgarh, MP, Odisha, northeast states = 70%+ of India's malaria burden; forest coverage, remoteness, tribal communities living near water bodies; hard to reach with healthcare; PMJVM (Week 12) + malaria elimination = same geography
Drug-resistant malaria	Myanmar border areas: Artemisinin-resistant <i>P. falciparum</i> detected; most dangerous development globally; if resistance spreads to India's interior, current first-line treatment (ACT – Artemisinin Combination Therapy) fails; surveillance critical
WHO Global Malaria Report	India's malaria progress = global recognition; India received WHO certification as 'high burden to high impact' country graduating; 2030 target aligns with WHO End Malaria 2030 global agenda; Indian progress = global public health contribution





Important Points for UPSC:

- Odisha's transformation: Odisha = 40% of India's malaria burden (2005); state government launched 'Durgama Anchalare Malaria Nirakaran' (DAMAN) programme; community health workers, mass drug administration, ITN distribution; Odisha's malaria burden now <20% of national total; DAMAN = model for tribal belt malaria elimination
- ACT + drug resistance: Artemisinin Combination Therapy is the gold standard first-line treatment; artemisinin-resistant *P. falciparum* first detected in Greater Mekong Sub-region (Cambodia, 2008); spread to Myanmar; India's northeast is at risk; if ACT fails, mortality rises sharply; India's border surveillance and molecular diagnostics are critical
- One Health and malaria: Climate change → warmer temperatures → *Anopheles* survives at higher altitudes and latitudes; deforestation → mosquito habitats expand; India's malaria elimination requires One Health approach (vector, human, environment) – connects to BRICS One Health (Week 12, Science Ministers)
- 2030 target realism: 11 states/UTs with zero indigenous transmission = good progress; remaining hotspots (tribal belt + northeast) are hardest-to-reach populations; 2030 target = ambitious but India has achieved similar feats (polio elimination 2014, maternal mortality reduction, JJM coverage) – political will + programme management determine outcome

IIP GROWTH 6.7% IN JULY 2026 – MANUFACTURING LEADS

Ministry: Ministry of Statistics & Programme Implementation

PIB Date: 28th August 2026

Easy Explanation

India's Index of Industrial Production (IIP) recorded 6.7% growth in July 2026, compared to July 2025. This is the first IIP data for FY2026-27 (July is the fourth month; MoSPI releases IIP data with a 6-week lag, so July data arrives in late August). The headline number – 6.7% – is above the FY2025-26 full-year average of 5.8%, suggesting that industrial activity is accelerating in the current financial year. Breaking down the 6.7%: Manufacturing (weightage 77.6% in IIP) grew 7.2% – the primary driver; Mining (weightage 14.4%) grew 4.8%; Electricity (weightage 8%) grew 6.1%. Within manufacturing, high-growth sectors: capital goods (12.3% – machinery and equipment for investment), consumer durables (9.8% – air conditioners, refrigerators, washing machines), and infrastructure/construction goods (8.1%). The acceleration in capital goods is particularly significant – it indicates that companies are investing in new production capacity, which leads to job creation and future GDP growth. Consumer durables growth at 9.8% reflects urban consumption recovery and the monsoon season (which typically boosts rural incomes and consumer demand in Q2). The



| Click to Connect Now.



IIP data, combined with the merchandise + services export growth (13.16%, Week 11) and UPI transaction volumes, paint a picture of India's industrial economy accelerating in FY2026-27.

Key Terms:

Term	Definition
IIP (Index of Industrial Production)	Measures monthly industrial output; base year 2011-12; three sectors: Mining (14.4%), Manufacturing (77.6%), Electricity (8%); released by MoSPI with 6-week lag; Use-Based Classification: capital goods, consumer durables, intermediate goods
6.7% IIP growth (July 2026)	Manufacturing 7.2%, Mining 4.8%, Electricity 6.1%; capital goods 12.3% (investment boom), consumer durables 9.8% (consumption), infrastructure goods 8.1%; above FY2025-26 average of 5.8%
Capital Goods 12.3%	Machinery, equipment for production; high capital goods growth = companies investing in new capacity; leading indicator for employment and future GDP growth; India's manufacturing PLI + ECMS (Week 12) driving this
Consumer Durables 9.8%	Air conditioners, refrigerators, washing machines, electronics; urban consumption + rural income (monsoon season); India's growing middle class + cooling demand (heat waves) + electronics PLI all contribute
Use-Based Classification	IIP categories: Primary goods (raw materials), Capital goods (machinery), Intermediate goods (inputs for production), Infrastructure/construction, Consumer durables, Consumer non-durables; growth distribution across categories reveals economic structure
IIP vs GDP	IIP = monthly industrial snapshot; GDP = quarterly comprehensive; IIP is a leading indicator for GDP's industrial component (25% of GDP); 6.7% IIP consistent with 7%+ GDP growth projection for FY2026-27
MoSPI's IIP methodology	Base year 2011-12; 407 items in the basket; manufacturing items from Annual Survey of Industries; mining from Ministry of Mines; electricity from Ministry of Power; sampling-based monthly estimate



Important Points for UPSC:

- IIP interpretation for UPSC: Key distinctions — Manufacturing vs Mining vs Electricity components; Use-Based Classification (Primary/Capital/Intermediate/Infrastructure/Consumer Durables/Consumer Non-Durables); Base year (2011-12); Release lag (6 weeks); Capital goods growth = investment signal; Consumer durables growth = consumption signal
- Capital goods 12.3% significance: When companies buy machinery, they're betting on future demand; 12.3% capital goods growth = India's industrial sector is in expansion mode; connects to PLI scheme outcomes (mobile phones, electronics, pharmaceuticals, food processing — all have PLI beneficiaries buying new equipment)
- IIP and election cycle: Capital goods and infrastructure goods growth are typically high in election years (government capex) and can slow after elections; but FY2026-27 is a non-election year; the 12.3% capital goods growth is private sector-driven — more sustainable than government-capex-driven growth
- Manufacturing PLI + IIP connection: PLI schemes (mobile phones, pharmaceuticals, electronics, ACC batteries, drones, solar PV, food processing — 14 sectors) are boosting manufacturing output; the 7.2% manufacturing growth in July 2026 is partly PLI-driven; as PLI projects complete capacity ramp-up, manufacturing growth should sustain

PIB BACKGROUNDER — NUCLEAR ENERGY TECHNOLOGY IN INDIA

Ministry: Ministry of Science & Technology / Department of Atomic Energy

PIB Date: 28th August 2026

Easy Explanation

India's nuclear energy programme is one of the most unique in the world — built on the foundation of its own three-stage architecture rather than importing technology wholesale. The DAE released a comprehensive Backgrounder this week that builds on the Minister's Lok Sabha statement (Week 11's DAE article) and covers the full technology arc. India's nuclear journey: Stage 1 (Pressurised Heavy Water Reactors — PHWRs): India has 22 PHWRs operating (Tarapur, Rawatbhata, Kalpakkam, Narora, Kakrapar, Kaiga) + 2 Light Water Reactors (Kudankulam, Russian VVER) + 1 BWR (Tarapur); these use natural uranium fuel; total operational capacity ~7,500 MW. Stage 2 (Fast Breeder Reactors — FBRs): PFBR (Prototype Fast Breeder Reactor) at Kalpakkam — designed to breed plutonium from thorium while producing electricity; India has been trying to commission PFBR since 2010; latest status: core loading completed, commissioning imminent; when operational, first Stage 2 reactor worldwide except Russia. Stage 3 (Advanced Heavy Water Reactors and Thorium Reactors): Uses thorium (India has 25% of world's thorium reserves — in monazite sands of Kerala-TN



| Click to Connect Now.



coast) as fuel; still in research stage at BARC. Small Modular Reactors (SMRs): India developing Bharat Small Modular Reactor (BSMR) and Bharat Small Reactor (BSR); also in discussions with NuScale (US) and GE-Hitachi for SMR deployment.

Key Terms:

Term	Definition
India's 3-Stage Nuclear Programme	Stage 1: PHWRs (natural uranium, operating); Stage 2: FBRs (plutonium from thorium, PFBR commissioning); Stage 3: Advanced reactors (thorium fuel, research); designed to exploit India's large thorium reserves and limited uranium
PHWR (Pressurised Heavy Water Reactor)	Uses heavy water (D ₂ O) as moderator and coolant; can use natural uranium (unenriched) unlike Light Water Reactors (need enriched uranium); India's workhorse reactor; 220 MW (old) and 700 MW (new) PHWRs; CANDU-derived design
PFBR (Prototype Fast Breeder Reactor)	Kalpakkam, Tamil Nadu; 500 MW; plutonium-uranium mixed oxide fuel; breeds more fissile material than it consumes; India's Stage 2; core loading completed; commissioning imminent; Russia's BN-800 is only operating commercial FBR
Thorium resources	India: 25% of world's thorium (6.5 lakh tonnes, mostly in monazite sands of Kerala-TN coast); almost no uranium (only 70,000 tonnes, limited); Stage 3 programme designed to use thorium = strategic logic behind India's unique 3-stage programme
SMR (Small Modular Reactor)	<300 MW; factory-manufactured; modular deployment; enhanced safety (passive cooling); Bharat Small Modular Reactor (BSMR) designed by BARC; also Bharat Small Reactor (BSR) for research; India also in discussions with NuScale (US) and GE-Hitachi for imported SMRs
NPCIL (Nuclear Power Corporation of India)	DAE CPSE; operates all commercial nuclear power plants; 14 new PHWRs under construction (Gorakhpur, Chutka, Bhimpur, Mahi Banswara, Kovvada); when complete = 9,800 MW addition; target 100 GW nuclear by 2047
Civil Nuclear Agreements	India-USA (123 Agreement, 2008) + NSG waiver; India-Russia (Kudankulam VVER), India-France (Jaitapur, EPR), India-Japan





(2016), India-Australia (uranium supply), India-Canada (historical CANDU); India now part of global civil nuclear mainstream

Important Points for UPSC:

- 3-Stage programme logic: India has almost no uranium but enormous thorium; Stage 1 PHWRs produce plutonium as byproduct; Stage 2 FBRs use plutonium to breed uranium-233 from thorium; Stage 3 uses uranium-233 + thorium directly; the three stages are a 50-year technology ladder designed specifically for India's resource endowment
- PFBR significance: If PFBR successfully commissions, India becomes only the second country after Russia to operate a commercial Fast Breeder Reactor; this validates Stage 2 and opens the path to Stage 3; PFBR has been 'about to commission' for 15 years – actual commissioning would be a landmark
- 100 GW nuclear by 2047: 7,500 MW operational + 9,800 MW under construction (14 new PHWRs) + PFBR + Kudankulam 3-6 + Jaitapur (6 × 1,650 MW EPRs, pending) + SMRs = possible 40-50 GW by 2040; 100 GW by 2047 requires acceleration + Jaitapur + SMR deployment + Stage 2 expansion
- Civil Liability for Nuclear Damage Act 2010: India's nuclear liability law; holds reactor suppliers liable for accidents; controversial – USA, France, Japan argued it violates international Convention on Supplementary Compensation (CSC); India-USA civil nuclear cooperation stalled partly over this; Insurance pool created as workaround; UPSC: CLNDA 2010 and its implications

PIB BACKGROUNDER — INDIA'S SUGAR INDUSTRY: ETHANOL, FARMER INCOME, EXPORT POLICY

Ministry: Ministry of Food Processing Industries / Ministry of Agriculture

PIB Date: 26th August 2026

Easy Explanation

India is the world's second-largest sugar producer (Brazil #1) and largest consumer. The industry involves 5 crore sugarcane farmers, 500+ sugar mills, and a complex web of government regulations covering: Fair and Remunerative Price (FRP) for sugarcane, minimum export prices (MEP) for sugar, ethanol blending targets, and buffer stock management. The PIB Backgrounder this week covers the industry's transformation – from a perennially distressed sector with farmer payment arrears and mill closures to one that is increasingly financially viable, driven by the ethanol blending programme. The ethanol story: sugarcane juice and molasses can be diverted to make ethanol (instead of sugar); oil marketing companies (OMCs) buy this ethanol at government-fixed prices (₹60-65/litre for sugarcane-based ethanol); revenue from ethanol sales



| Click to Connect Now.



allows mills to pay farmers; this reduces the 'sugar glut' problem (when too much sugar → prices fall → mills can't pay farmers) by giving an alternative revenue stream. India's E20 (20% ethanol in petrol) mandate (achieved ahead of schedule, Week 12) is directly powered by this sugarcane-ethanol pipeline. Beyond ethanol: sugar exports have been managed through MEP (minimum export price) and permitted quantities to balance domestic availability vs global price; India's sugar exports surged to 11 million tonnes in FY2021-22 (briefly world's largest exporter) before being capped for domestic stability.

Key Terms:

Term	Definition
India's sugar profile	2nd largest producer (Brazil #1); largest consumer; 5 crore cane farmers; 500+ mills; FRP mechanism; ethanol blending; export management; complex regulation balancing farmers + mills + consumers
FRP (Fair and Remunerative Price)	Minimum price for sugarcane mandated by central government; CACP recommends; Cabinet approves; state governments can set SAP (State Advised Price) higher; mills must pay FRP within 14 days of delivery
Ethanol Blending Programme (EBP) + Sugar	Sugarcane juice and B-molasses → ethanol; OMCs buy at ₹60-65/litre; revenue helps mills pay farmers; reduces sugar surplus; India's E20 target powered by cane ethanol; mills that divert to ethanol are financially healthier
Sugar-ethanol balance	More ethanol diversion = less sugar production = higher domestic sugar prices; government balances: enough ethanol for E20 + enough sugar for domestic consumption at stable price; dynamic annual target adjustment
MEP (Minimum Export Price)	Minimum price at which Indian sugar can be exported; prevents sugar sold cheaply abroad while domestic prices rise; government adjusts MEP seasonally; when domestic supply tight = raise MEP or ban exports
Buffer stock scheme	Government maintains strategic sugar buffer (2-3 million tonnes); releases to market when prices spike; builds when prices fall; NAFED manages; connects to essential commodities price management



**FRP arrears problem**

Historically, mills paid cane farmers months late (or not at all); FRP + ethanol revenue has improved payment; but arrears still occur in years when sugar prices are low; Gramin Agricultural Markets (GrAMs) and direct farmer payment systems help

Important Points for UPSC:

- Sugarcane political economy: UP, Maharashtra, Karnataka = 80%+ of cane production; cane farmers are a powerful electoral constituency; FRP is politically driven upward every year regardless of economic conditions; mills between government-fixed FRP (input cost) and market-determined sugar price (revenue) – structural squeeze
- E20 + sugar industry: India's E20 mandate (Week 12) requires 1,000+ crore litres of ethanol/year; 70-80% from sugarcane; this demand for ethanol is transforming the sugar industry's business model – from 'sugar company with ethanol byproduct' to 'integrated sugarcane processing company with sugar + ethanol + power (bagasse)'
- Integrated sugar complex: Modern mills generate: sugar (primary product), ethanol (from juice/molasses), power (from burning bagasse – sugarcane fibre), and press mud (fertiliser from filter cake); this integrated model = mill is viable even when sugar prices are low because ethanol and power provide revenue
- India-Brazil sugar competition: Brazil = world's largest sugar producer; uses flex-fuel vehicles (80%+ of Brazil's cars run on any ethanol-petrol blend); India aspires to Brazil's model; E20 → E30+ in India = sugarcane farmers' long-term income security; India-Brazil sugar trade competition in global markets

PIB BACKGROUNDER — NADCP (NATIONAL ANIMAL DISEASE CONTROL PROGRAMME) + REGENERATIVE AGRICULTURE

Ministry: Ministry of Fisheries, Animal Husbandry & Dairying / Ministry of Agriculture

PIB Date: 22nd-23rd August 2026

Easy Explanation

Two Backgrounders with complementary themes – animal health and agricultural sustainability. NADCP (National Animal Disease Control Programme): India has the world's largest livestock population – 535 million animals including 192 million cattle, 102 million buffaloes, 149 million goats, 74 million sheep. Two diseases cause the most economic damage: Foot and Mouth Disease (FMD) and Brucellosis. FMD affects cattle, buffaloes, pigs, and goats – it reduces milk production by 25-50% during outbreaks, causes weight loss, reduces fertility, and occasionally kills young animals. FMD virus is highly contagious. Brucellosis affects



| Click to Connect Now.



cattle and buffaloes – it causes abortion, reduces milk production, and is a zoonotic disease (humans get undulant fever from infected raw milk or contact with aborted material). NADCP (2019-20 launch, ₹13,343 crore over 5 years) targets: FMD-free India by 2025 (achieved in most states; 2030 target for all states); Brucellosis-free India by 2030; mass vaccination of all cattle and buffaloes annually. Regenerative Agriculture Backgrounder: covers farming practices that restore soil health (cover cropping, reduced tillage, composting, crop rotation, agroforestry) rather than depleting it; India's soils are degrading – 30% of agricultural land is degraded; soil carbon sequestration as climate tool; connections to natural farming (ZBNF – Zero Budget Natural Farming, advocated by Subhash Palekar), Mission LiFE, and India's climate commitments.

Key Terms:

Term	Definition
NADCP	National Animal Disease Control Programme; 2019-20; ₹13,343 crore over 5 years; FMD-free India by 2025/2030; Brucellosis-free by 2030; annual mass vaccination of all cattle and buffaloes; 100% government-funded
FMD (Foot and Mouth Disease)	Highly contagious; affects cattle, buffaloes, pigs, goats; 25-50% milk reduction during outbreaks; causes: blisters on feet and mouth, lameness, weight loss; FMD virus has 7 serotypes; India uses bivalent/trivalent vaccine; not zoonotic
Brucellosis	Cattle + buffalo; causes abortion (pregnancy loss), milk reduction; Brucella bacteria; ZOONOTIC – humans get brucellosis (undulant fever) from raw milk, aborted material; Brucella abortus (cattle) and B. melitensis (small ruminants)
NADCP + One Health	Brucellosis is zoonotic – connects NADCP to One Health framework; control in animals = prevention in humans; India's IVBDP (Integrated Vector Borne Disease Control Programme) + NADCP + ICMR = One Health institutional ecosystem
Regenerative Agriculture	Farming practices that restore soil health: cover cropping, reduced tillage, composting, crop rotation, agroforestry; India 30% agricultural land degraded; soil carbon sequestration = climate tool; differs from organic (which is about what not to use) – regenerative is about what to add/restore
ZBNF (Zero Budget Natural Farming)	Zero external input farming; Subhash Palekar's method; uses local inputs (jeevamrit – fermented cow dung/urine solution); Andhra





	Pradesh scaled to 6+ lakh farmers; PM promoted at UNGA 2019; connects to NADCP – healthy cattle essential for jeevamrit
Mission LiFE	Lifestyle for Environment; PM Modi at COP26; individual-level environmental behaviour change; climate-friendly choices in food (less meat → less livestock methane), agriculture (less chemical fertiliser), energy; Regenerative Agriculture = Mission LiFE's agricultural pillar

Important Points for UPSC:

- FMD economic cost: India's FMD losses estimated at ₹20,000-30,000 crore annually (milk loss + weight loss + mortality + treatment); FMD-free status would save this annually + open export markets (FMD-free countries get premium prices for livestock products and can access EU market for buffalo meat); NADCP's cost (\$1.5 billion) is recouped within 1-2 years of FMD freedom
- Brucellosis zoonosis risk: Brucella causes undulant fever in humans (fever, fatigue, joint pain, sweating – chronic and debilitating); India has 1-2 million human brucellosis cases/year (significant under-reporting); raw milk consumption (common in rural India) is the main transmission route; NADCP cattle vaccination = human health protection
- Regenerative Agriculture vs organic: Organic = no synthetic inputs; regenerative = soil-building practices regardless of input source; regenerative can use some synthetic inputs if they build soil health; less restrictive than organic certification but potentially more impactful at scale; India's Natural Farming initiative is regenerative
- Soil carbon and NDC: India's updated NDC (2022) includes creating carbon sink of 2.5-3 billion tonnes CO₂-equivalent through additional forest and tree cover; soil carbon in agricultural land is part of this sink; regenerative agriculture increases soil organic carbon = contributes to NDC carbon sink commitment without being counted separately





HONORARY MENTIONS

Facts that didn't make the article cut – but are exactly the kind of one-liners UPSC drops in a statement-based question.

Topic	Key Fact	UPSC Angle
IAF Pitch Black + Udara Shakti	IAF concluded two simultaneous multinational exercises: Pitch Black (Australia, Darwin) and Udara Shakti (Malaysia); Su-30MKI deployed; Malaysia uses Su-30MKM – natural Sukhoi interoperability.	GS-III defence; India's Indo-Pacific air exercise network; Pitch Black biennial; Udara Shakti = 'sky strength' (Malay + Sanskrit); Australia is Quad partner; Act East Policy air dimension.
INS Mangrol – 3rd ASW SWC	INS Mangrol delivered by CSL (Cochin Shipyard); 3rd of 8 Anti-Submarine Warfare Shallow Water Craft; hull-mounted + towed array sonar; torpedo launchers; serial: INS Mahe (1st), Mulki (2nd), Mangrol (3rd).	GS-III defence; ASW = Anti-Submarine Warfare; Pakistan's Type 039B (Hangor-class, 8 ordered from China) = threat context; CSL also built INS Vikrant; shallow water ASW specialist vessel.
FDC ban – children under 4	Government restricted FDCs containing Chlorpheniramine Maleate + Phenylephrine Hydrochloride for children under 4; cardiac risk + sedation risk disproportionate to benefit; CDSCO regulates.	GS-II health; FDC = Fixed Dose Combination; D.Y. Patil Committee (2012), Kokate Committee (2014) = background for India's FDC rationalization; Phenylephrine: US FDA (2023) declared ineffective orally.
India-New Zealand Defence Dialogue	2nd India-NZ Defence Strategic Dialogue, Wellington; maritime security, intelligence sharing, HADR; NZ = Five Eyes member; NZ EEZ = 4th largest globally	GS-II international relations; Five Eyes (USA, UK, Canada, Australia, NZ); AUKUS (Australia-UK-USA); India not in either but bilateral arrangements with each; NZ bridge between India and Five Eyes network.





Topic	Key Fact	UPSC Angle
	(4.3 mn sq km); NZ Pacific Reset + India SAGAR convergence.	
INS Nipun — 2nd DSV	India's 2nd indigenous Diving Support Vessel; saturation diving (300m+ depth); submarine rescue, salvage, underwater infrastructure; INS Nistar (1st, L&T Kattupalli, 2023); private sector shipbuilding.	GS-III defence; DSV = Diving Support Vessel; DSRV = Deep Submergence Rescue Vehicle; saturation diving = divers live at working pressure for weeks; India operates US-supplied DSRV.
DRDO missile ToT to industry	Raksha Mantri approved Transfer of Technology of DRDO-developed missile systems to Indian private defence industry; first time DRDO broadens missile manufacturing beyond BDL monopoly; enables export.	GS-III defence; BDL (Bharat Dynamics Ltd) = primary missile manufacturer; ToT = technical documentation + manufacturing rights; Astra (BVR air-to-air), Akash (SAM) = key missile systems; \$5 billion export target.
INS Samarthak — 1st MPV	India's first indigenous Multi-Purpose Vessel delivered; harbour towing, ocean salvage, firefighting, pollution control; Goa Shipyard Limited; three naval vessels in one week (Mangrol + Nipun + Samarthak).	GS-III defence; MPV = Multi-Purpose Vessel; GSL = Goa Shipyard Limited (DPSU); naval auxiliary fleet indigenisation alongside combat fleet; harbour towing = essential for moving large warships in port.
India-Kuwait JDC — inaugural	First-ever India-Kuwait Joint Defence Committee meeting, New Delhi; defence exports to Kuwait's \$5 billion modernisation programme; maritime security; 1 million+	GS-II IR + GS-III defence; India's Gulf defence arc: UAE (most advanced) + Oman + Saudi Arabia + Kuwait (inaugural JDC); GCC defence market \$90+ billion; Camp Arifjan (US base in Kuwait) context.





Topic	Key Fact	UPSC Angle
	Indian diaspora in Kuwait; Gulf defence arc completing.	
Defence Export SOP + OGEL	MoD simplified defence export Standard Operating Procedure; Open General Export Licence (OGEL) framework; single-window for trusted partner countries; faster for repeat exports; UK OGEL as model.	GS-III defence; DPEPP 2020 target \$5 billion; OGEL = multiple exports without individual licence; reduces procedural friction vs Israel/South Korea's streamlined export processes; DGFT + MoD integration.
India-Japan: Goyal's Tokyo visit	200-member business delegation; Semiconductors + AI Roundtable (Renesas, Rohm, Sony); GPIF (\$1.7 trillion pension fund) invited; India-Japan Startup Roundtable; CG Power-Renesas ATMP (Sanand) anchor.	GS-II IR + GS-III economy; GPIF = world's largest pension fund; CG Power-Renesas ATMP = Assembly Testing Marking Packaging; Semicon India + Japan-India semiconductor complementarity.
India- Cambodia JWGTI — 3rd meeting	Joint Working Group on Trade and Investment, Phnom Penh; NTB reduction, pharma standards, investment facilitation; Cambodia = 8th largest garment exporter; India-ASEAN FTA review context.	GS-II IR; ASEAN FTA (2010); India's trade deficit with ASEAN grew \$7bn→\$45bn since FTA; bilateral JWGTIs = targeted engagement; Mekong-Ganga Cooperation; CLMV countries.
India- Morocco 7th Joint Commission	Jitin Prasada co-chairs; phosphate (Morocco 70%+ world reserves = India's fertiliser security), auto manufacturing, green hydrogen, pharma; Morocco-	GS-II IR; OCP Group = world's largest phosphate exporter; DAP fertiliser = phosphate-dependent; Morocco-EU FTA = India goods via Morocco get EU access; Morocco rejoined AU in 2017.





Topic	Key Fact	UPSC Angle
	AfCFTA gateway; India-Morocco trade \$2-3 billion.	
CSIR-NAL micro gas turbines	CSIR-National Aerospace Laboratories unveiled indigenous micro and small gas turbine engines for UAVs, cruise missiles, loitering munitions; Nirbhay cruise missile currently uses US Williams F107 engine.	GS-III science/defence; Kaveri engine (failed for Tejas LCA); CSIR-NAL (Bengaluru) = civil aerospace R&D; micro turbines for UAVs fill gap between electric (small range) and large turbines (manned aircraft).
South Asian gut microbiome	Indian scientists identified South Asian gut microbiome uniqueness: Prevotella dominant (vs Bacteroides in Western populations); different SCFA production; affects lifestyle disease treatment; drug dosing may differ.	GS-III science; gut microbiome = 'second brain'; SCFAs (short-chain fatty acids) from fibre fermentation; traditional Indian diet (high fibre) → Prevotella; urbanisation shifts microbiome; 10 crore+ diabetics in India.
Alzheimer's smart diagnosis	Indian scientists developed multi-modal AD diagnostic: blood biomarkers (amyloid-beta, tau) + AI speech analysis + digital cognitive test; comparable to invasive CSF testing; district hospital deployable.	GS-II health; AD = 4.1 million Indians (2024), 7.6 million by 2030; amyloid-beta plaques + tau tangles; ARDSI; aging population challenge; NMHP 2014 includes dementia.
India land restoration 21.76 mn ha	Bhupender Yadav at UNCCD COP17: India restored 21.76 million hectares (2011-2020), generating 1.22 billion person-days of employment; Bonn Challenge commitment	GS-III environment; UNCCD (Rio Convention); LDN (Land Degradation Neutrality); Bonn Challenge; MGNREGA = primary land restoration instrument; FSI data; India's three Rio Convention performance.





Topic	Key Fact	UPSC Angle
	= 26 mn ha by 2030; ahead of schedule.	
Rangeland restoration — community-led	India called for community-led restoration of rangelands at UNCCD COP17; Rabari, Maldhari, Van Gujjar as restoration managers; FRA 2006 CFR rights as legal basis; against fortress conservation model.	GS-III environment; rangelands = 50% of Earth's land surface; pastoralists = 1 billion+ livelihoods; FRA 2006 community forest resource rights; Traditional Ecological Knowledge (TEK); Banni grasslands case.
UPI — 10 years	April 2016 launch; 1,000 crore+ transactions/month; ₹20 lakh crore+ monthly value; zero MDR (Jan 2020); 17+ countries; 500 million+ users; UPI Lite (offline <₹500) and UPI 123PAY (feature phones).	GS-III economy; NPCI (National Payments Corporation of India); zero MDR = government policy not market decision; PhonePe+Google Pay 80%+ share vs NPCI's 30% cap; JAM→JAM+UPI→JAM+UPI+CBDC evolution.
PMJDY — 12 years	53+ crore accounts; ₹2.3 lakh crore deposits; 55% women; 67% rural/semi-urban; zero minimum balance; RuPay + ₹2 lakh accident insurance; ₹10,000 overdraft; DBT backbone.	GS-III economy + GS-II governance; launched 28 Aug 2014; PMJJBY (₹436/year life insurance) + PMSBY (₹20/year accident) linked; JAM Trinity's 'J'; COVID cash transfer worked BECAUSE PMJDY accounts existed.
Critical Minerals Hackathon 2026	Ministry of Mines; 5 tracks: downstream processing, urban mining/recycling, substitute materials, AI mineral mapping, value chain digitisation (blockchain); India imports 100% of lithium, cobalt, nickel.	GS-III economy/science; Critical Minerals Mission (Budget 2024-25); MMDR 2026; India's e-waste = 3.2 million tonnes/year (3rd largest globally); urban mining; GSI + AI mineral mapping.





Topic	Key Fact	UPSC Angle
Gnani Artha sovereign AI stack	VP Radhakrishnan launched Gnani Artha (sovereign AI): Evon 3.3 (LLM) + Plexus (orchestration layer); 'Gnani' = wise (Sanskrit/Tamil), 'Artha' = wealth/meaning; domestic AI not dependent on US companies.	GS-III science; IndiaAI Mission (₹10,372 crore); BharatGen (multilingual LLM); sovereign AI = classified data processing on Indian servers; CLOUD Act concerns with US AI companies; Arthashastra cultural framing.





PRACTICE QUESTIONS

10 PRELIMS QUESTIONS

Q1. Consider the following about India's ASW SWC programme:

1. INS Mangrol is the third Anti-Submarine Warfare Shallow Water Craft built by Cochin Shipyard Limited.
2. ASW SWCs carry both hull-mounted and towed array sonar systems.
3. The first vessel in the class was INS Mahe, and the second was INS Mulki.
4. CSL (Cochin Shipyard Limited) is a private sector company.

How many statements are correct?

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

Q2. India's three-stage nuclear programme is designed to exploit which resource?

- (a) India's large uranium reserves in Jharkhand and Andhra Pradesh
- (b) India's vast thorium reserves, primarily in the monazite sands of Kerala and Tamil Nadu
- (c) India's coal reserves, through coal gasification to produce hydrogen for nuclear fuel
- (d) India's offshore oil reserves, through thorium extraction from petroleum

Q3. India's Bonn Challenge commitment and UNCCD LDN target:

- (a) India committed to restore 21.76 million hectares by 2030 under the Bonn Challenge
- (b) India committed to restore 26 million hectares by 2030; it has already restored 21.76 million hectares during 2011-2020, ahead of schedule
- (c) India committed to 30x30 (30% land protected) under the Bonn Challenge
- (d) India's Bonn Challenge commitment is 15 million hectares by 2025, which it has missed

Q4. With reference to PM Jan Dhan Yojana at 12 years, which statement is INCORRECT?

- (a) The scheme requires a minimum balance of ₹1,000 to keep the account active
- (b) 55% of PMJDY account holders are women
- (c) RuPay debit card with ₹2 lakh accident insurance is provided to all account holders
- (d) 67% of accounts are in rural and semi-urban areas





Q5. The Open General Export Licence (OGEL) for defence exports is significant because:

- (a) It gives foreign governments an open licence to buy any Indian defence equipment
- (b) It allows Indian exporters to ship specified defence items to approved countries multiple times without applying for individual licences each time
- (c) It waives all export duties on defence equipment to allied nations
- (d) It gives DRDO the authority to directly export its technology without MoD approval

Q6. India's PFBR (Prototype Fast Breeder Reactor) is significant because:

- 1. It is located at Kalpakkam, Tamil Nadu.
- 2. It will use plutonium-uranium mixed oxide fuel and breed additional fissile material from thorium.
- 3. When commissioned, India would be only the second country after Russia to operate a commercial Fast Breeder Reactor.
- 4. It was commissioned in 2015 and has been operating for over a decade.

Which are correct?

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

Q7. Consider the following about UPI at 10 years:

- 1. UPI was launched in April 2016 by NPCI.
- 2. Zero MDR (no merchant discount rate) for UPI has been in effect since January 2020.
- 3. UPI is currently live in 17+ countries.
- 4. PhonePe and Google Pay together hold below 50% of UPI transactions, respecting NPCI's 30% cap per app.

How many are correct?

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

Q8. The South Asian gut microbiome study's finding that Prevotella (rather than Bacteroides) dominates is linked to:

| Click to Connect Now.



- (a) The genetic predisposition of South Asians to produce Prevotella rather than Bacteroides
- (b) Traditional Indian high-fibre diets (pulses, whole grains, vegetables) that feed Prevotella; urbanisation shifts this toward Bacteroides, linked to increased lifestyle disease risk
- (c) Lower ambient temperatures in South Asia compared to Western countries
- (d) Higher levels of antibiotic use in India which preferentially kills Bacteroides

Q9. NADCP (National Animal Disease Control Programme) targets elimination of:

- (a) Avian Influenza (H5N1) and Rabies by 2030
- (b) Foot and Mouth Disease (FMD) and Brucellosis by 2025/2030
- (c) African Swine Fever and Lumpy Skin Disease by 2028
- (d) Bovine Tuberculosis and Blue Tongue Disease by 2030

Q10. India's Critical Minerals Innovation Hackathon 2026 includes which track that could reduce dependence on imported critical minerals even without domestic mining?

- (a) Downstream processing track – converting ore to battery-grade material
- (b) Substitute materials track – developing alternative materials that reduce dependence on any single critical mineral
- (c) AI/ML mineral mapping track – identifying new deposits from satellite data
- (d) Value chain digitisation track – blockchain-based supply chain tracking

2 MAINS QUESTIONS WITH MODEL ANSWERS

MAINS Q1 – 150 WORDS:

India's three-stage nuclear programme is described as uniquely suited to India's resource endowment. Explain the logic of the three-stage design and evaluate whether it remains the right strategy for India's 2047 energy security goals.

MODEL ANSWER – 150 WORDS:

The three-stage programme's logic is elegant and India-specific. Stage 1 (PHWRs) uses natural uranium – avoiding enrichment technology dependence – while producing plutonium as a byproduct. Stage 2 (Fast Breeder Reactors like PFBR) uses that plutonium to breed uranium-233 from thorium, while generating power. Stage 3 uses uranium-233 and thorium directly.





The strategic logic: India has limited uranium (~70,000 tonnes) but enormous thorium (~6.5 lakh tonnes, 25% of world reserves, primarily in Kerala-Tamil Nadu monazite sands). The programme converts a uranium-poor, thorium-rich endowment into a long-term nuclear fuel cycle. For 2047 energy security, the programme's value depends on its execution. PFBR at Kalpakkam is the critical bottleneck – 15 years delayed, it must commission successfully to validate Stage 2 and enable Stage 3. Without PFBR, Stage 3 remains theoretical. Additionally, the 100 GW nuclear target by 2047 requires parallel acceleration on conventional tracks (14 new PHWRs, Jaitapur EPRs, SMRs) – waiting only for the three-stage programme is too slow. The programme remains strategically right but needs supplementation with imported reactor technology (Jaitapur, Kudankulam expansion) and SMRs to reach 2047 targets at the required pace.

MAINS Q2 – 250 WORDS:

India's defence exports have grown from \$0.35 billion (2014-15) to \$2.8 billion (2024-25) but face the \$5 billion target by 2028-29. Analyse the structural constraints and this week's reforms (DRDO missile ToT + Defence Export SOP + OGEL) as policy responses.

MODEL ANSWER – 250 WORDS:

India's defence export growth – from near-zero to \$2.8 billion in a decade – is remarkable but the \$5 billion target faces structural constraints that this week's reforms address with varying effectiveness. Structural constraints: First, product portfolio: India's current export strengths are fast patrol boats, small arms, ammunition, and BrahMos (the star export). High-value export categories – missiles, advanced electronics, aircraft – require longer development cycles and export approvals. Without a broader product portfolio, \$5 billion is difficult. Second, procedural friction: India's multi-ministry export approval process (MoD + MEA + DGFT + MHA for dual-use) took months – longer than competing exporters. Foreign buyers with urgent procurement needs simply went to Israel (2-3 weeks) or South Korea. Third, manufacturing scale: BDL's monopoly on missile production created a single-source bottleneck; private sector excluded from high-value items meant limited manufacturing scale for export quantities. This week's reforms address all three: DRDO missile ToT to private industry: Breaks BDL's monopoly, enables scale production, opens Astra and Akash for export at commercially viable volumes. This addresses the portfolio and manufacturing scale constraints simultaneously. Simplified SOP + OGEL: Reduces procedural friction. Trusted partner countries get expedited clearance; OGEL allows repeat exports without fresh





paperwork. This directly addresses the competitiveness gap versus Israel and South Korea. Remaining gaps: End-use monitoring capacity (India needs post-shipment verification infrastructure to accompany simplified exports); export financing (India lacks the export credit support that Israel's Bituach Leumi or South Korea's KEXIM provide); and technology maturity (some DRDO systems still lag global standards). Conclusion: The reforms are well-calibrated – ToT addresses supply, SOP+OGEL addresses process. But \$5 billion by 2028-29 also requires: Jaitapur-class large contracts (where exports generate multi-billion revenue from one deal), accelerating Tejas Mk-1A exports (Malaysia, Egypt discussions), and developing export financing. The reforms are necessary but not sufficient alone.

PRELIMS ANSWERS & EXPLANATIONS

Q1. Answer: (b) Only three

Statements 1 (INS Mangrol = 3rd ASW SWC by CSL), 2 (hull-mounted + towed array sonar), and 3 (INS Mahe 1st, Mulki 2nd, Mangrol 3rd) are correct. Statement 4 is WRONG – CSL (Cochin Shipyard Limited) is a public sector company (listed PSU, government of India is majority shareholder); it built INS Vikrant (India's first indigenous aircraft carrier) – not a private sector company.

Q2. Answer: (b)

India's three-stage programme is specifically designed for India's thorium-rich, uranium-poor resource endowment. India's thorium reserves (~6.5 lakh tonnes) are 25% of world's total, primarily in monazite sands of Kerala-Tamil Nadu coast. Stage 3 reactors will use thorium as primary fuel. India's uranium deposits (Jharkhand, AP) are limited at ~70,000 tonnes – insufficient for a large nuclear programme without the three-stage breeding cycle.

Q3. Answer: (b)

India's Bonn Challenge commitment = restore 26 million hectares by 2030 (not 21.76 mn ha – that's what was already restored). At UNCCD COP17, Minister Yadav announced 21.76 mn ha restored during 2011-2020, which is 84% of the 26 mn ha commitment achieved 10 years before the 2030 deadline = ahead of schedule. The 30x30 target is from Kunming-Montreal Biodiversity Framework (CBD), not Bonn Challenge.

Q4. Answer: (a)





Statement (a) is INCORRECT – PMJDY is specifically a zero minimum balance account; this is its defining feature for financial inclusion. Requiring minimum balance would exclude the very poor it targets. All other statements (b) 55% women, (c) RuPay + ₹2 lakh accident insurance, (d) 67% rural/semi-urban are correct.

Q5. Answer: (b)

OGE (Open General Export Licence) allows Indian exporters to ship specified defence items to pre-approved (trusted partner) countries multiple times without applying for individual export licences each time – reducing procedural burden for repeat exports. It is NOT a foreign government licence to buy anything, NOT a duty waiver, and NOT DRDO bypass of MoD.

Q6. Answer: (a) 1, 2 and 3 only

Statement 4 is WRONG – PFBR has NOT been commissioned; it has been delayed for 15+ years and was expected to commission 'soon' as of 2026 (core loading completed, commissioning imminent but not yet operational). Statements 1 (Kalpakkam, TN – correct), 2 (plutonium-uranium MOX fuel breeds from thorium – correct), and 3 (Russia's BN-800 is the only operating commercial FBR; India would be 2nd – correct) are accurate.

Q7. Answer: (b) Only three

Statement 4 is WRONG – PhonePe (~48%) + Google Pay (~36%) = 84% of UPI transactions together, far exceeding NPCI's 30% cap per individual app; NPCI's cap enforcement has repeatedly been delayed; saying they 'respect the 30% cap' is factually incorrect. Statements 1 (April 2016, NPCI), 2 (zero MDR since January 2020), and 3 (17+ countries) are all correct.

Q8. Answer: (b)

Prevotella dominance in South Asian gut is driven by traditional high-fibre Indian diets (pulses, whole grains, vegetables) which ferment to feed Prevotella bacteria. Urbanisation shifts diet away from fibre → microbiome shifts toward Bacteroides (Western gut) → changes SCFA production → affects insulin sensitivity and inflammation → increased lifestyle disease risk. This is diet-driven, not genetic, not temperature-related, not antibiotic-related.

Q9. Answer: (b)

NADCP targets: FMD (Foot and Mouth Disease)-free India by 2025 (most states) and 2030 (all states); Brucellosis-free India by 2030. Brucellosis is notably zoonotic (humans get undulant fever from infected raw milk). Avian Influenza, Rabies, African Swine Fever, Lumpy Skin Disease, Bovine Tuberculosis are separate disease control programmes, not NADCP's primary targets.



Q10. Answer: (b)

The 'substitute materials' track – developing alternative materials that reduce dependence on any single critical mineral – can reduce import dependence even without finding or mining any new domestic deposits. For example, sodium-ion battery technology reduces lithium dependence; LFP (lithium iron phosphate) reduces cobalt dependence; silicon anodes reduce graphite dependence. The other tracks (processing, AI mapping, digitisation) are valuable but require actual mineral deposits or existing supply chains.

