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# Current Affairs Today — May 20, 2026

20 May 2026 · 21 min read · 6 tags

## E30 PETROL STANDARD NOTIFIED BY BIS — ETHANOL BLENDING BEYOND E20

The **Bureau of Indian Standards (BIS)** has gazette-notified the **IS specification for E30 fuel** — a blend of **30% ethanol with 70% petrol** — marking a major forward step in India's **Ethanol Blended Petrol (EBP) Programme**. This comes after India achieved the **E20 target ahead of schedule** (2025 vs the original 2030 deadline) and signals the government's intent to push blending ratios further under the **National Biofuel Policy 2018**.

### Background

- India's Ethanol Blended Petrol Programme was launched in **2001**; the target of **20% blending (E20)** was brought forward from 2030 to **2025** in the revised National Biofuel Policy 2018 (amended 2022).
- E20 became standard across most fuel retail outlets by early 2025; E10 and E15 were the intermediate milestones.
- The **National Biofuel Policy 2018** permits use of sugarcane juice, B-heavy molasses, C-heavy molasses, damaged food grains, agricultural residues, and lignocellulosic biomass as ethanol feedstocks.
- BIS — set up under the **Bureau of Indian Standards Act, 2016** — is the apex standardisation body; its IS specifications are mandatory for commercial fuel sale.

### Key Facts

- **E30 specification:** 30% ethanol (by volume) blended with 70% petrol; IS standard now gazette-notified.
- **Engine compatibility:** E30 requires **Flex Fuel Vehicles (FFVs)** or engine modifications — existing E20-compatible engines may not run optimally on E30 without upgrades; Ministry of Road Transport and Highways has mandated FFV capability in new vehicles from **2025 model year onward**.
- **Forex savings:** Every 1% increase in ethanol blending saves approximately **₹200 crore** in crude import bill annually; India imports ~85% of its crude oil requirements (~USD 100–110 billion/year at current prices).

- **Ethanol supply:** India's ethanol production capacity crossed **1,000 crore litres** in 2025; sugarcane-based distilleries supply the bulk; grain-based ethanol (rice, maize) rising under the FCI surplus diversion scheme.
- **Environmental benefit:** Ethanol combustion produces **~50% lower particulate matter** and reduces CO<sub>2</sub> lifecycle emissions by 30–40% compared to pure petrol.
- **Pricing:** Ethanol ex-distillery prices are fixed by the government annually; for 2024-25 season: C-heavy molasses ₹57.61/litre, B-heavy ₹60.73/litre, sugarcane juice/sugar ₹65.61/litre.

### UPSC Angle

- **GS Paper 3 (Economy — Energy Security):** National Biofuel Policy 2018, targets, feedstocks, and forex savings are standard prelims facts. Mains — analyse India's ethanol blending as an energy security, farmer income, and decarbonisation strategy.
- **GS Paper 3 (Environment):** Lifecycle emissions of biofuels vs fossil fuels; food-vs-fuel debate (diversion of food grains to ethanol).
- **Prelims hooks:** BIS Act 2016, E20 achievement year (2025), IS specification authority, FFV mandate, approximate forex savings per 1% blending.
- **Mains angle:** "India's transition from E20 to E30 — opportunities for farmers and challenges for the automotive sector."

*Bureau of Indian Standards; set up under **BIS Act, 2016**; replaced Bureau of Indian Standards Act, 1986; headquartered in New Delhi. **EBP Programme:** Ethanol Blended Petrol Programme; administered by Ministry of Petroleum and Natural Gas (MoPNG). **National Biofuel Policy 2018:** Amended in **2022** to expand feedstock eligibility and bring E20 target to 2025. **FFV:** Flex Fuel Vehicle — capable of running on any blend of petrol and ethanol from E0 to E85. **MTPA:** Million Tonnes Per Annum — standard oil industry volume unit. **Food-vs-fuel trade-off:** FAO warns diverting food grains to biofuel can spike food prices; India mitigates this by primarily using molasses (a by-product) and FCI surplus grain.*

## NEET-UG 2026 PAPER LEAK AND NTA REFORM — CBI PROBE, CBT FROM 2027

*A suspected **paper leak in NEET-UG 2026** — involving the medical entrance examination administered by the **National Testing Agency (NTA)** — triggered a **CBI investigation**, Supreme Court petitions, and a government announcement that **NEET-UG will shift to Computer-Based Testing (CBT) from 2027 onward**. The controversy follows the 2024 NEET-UG paper leak and builds pressure on India's examination integrity framework.*

## Background

- **NEET-UG** (National Eligibility cum Entrance Test — Undergraduate) is the single gateway examination for MBBS, BDS, AYUSH, and Nursing admissions across India; over **22 lakh students** appear annually.
- The 2024 NEET-UG controversy (grace marks, paper leak in Bihar and Gujarat) led to the **Dr. K. Radhakrishnan Committee** (former ISRO Chairman) being constituted to review NTA's functioning; its report recommended transition to CBT, modular scheduling, and third-party audit of exam centres.
- NEET-UG 2026 was conducted in **pen-and-paper mode** on **May 4, 2026**; a suspected leak of question papers from at least two states surfaced within days, prompting CBI registration of FIR.

## Key Facts

- **CBI investigation:** FIR registered under IPC sections for forgery, criminal conspiracy, and Prevention of Corruption Act; suspects include coaching institute operators and exam centre staff.
- **NTA response:** NTA announced NEET-UG will shift to **CBT mode from 2027** — pen-and-paper format to continue for 2026 re-exam (if ordered) on June 21, 2026.
- **SC petitions:** Multiple petitions before the Supreme Court seek NTA dissolution, mandatory CBT, and court-monitored re-examination; bench headed by CJI has sought NTA's response.
- **K. Radhakrishnan Committee** (constituted post-2024 leak): Recommended exam centre rationalisation, live CCTV monitoring, randomised question sets, and eliminating single-city examination dependency.
- **Affected students:** Over **22 lakh candidates** registered for NEET-UG 2026; cancellation/re-exam disrupts MBBS admission timelines for 107 medical colleges and 54,655 MBBS seats.
- **NTA mandate:** NTA was established in **2017** under the Ministry of Education to conduct central entrance exams (NEET, JEE Main, CUET, NET, etc.).

## UPSC Angle

- **GS Paper 2 (Governance — Education):** NTA reform, examination integrity, and right to education angles; role of statutory bodies in conducting national exams.
- **GS Paper 2 (Social Issues):** Equity implications — paper leaks disproportionately disadvantage meritorious students from poor backgrounds who cannot afford re-coaching.
- **Prelims hooks:** NTA establishment year (2017), Ministry of Education oversight, K. Radhakrishnan Committee mandate, CBT transition year (2027).
- **Mains angle:** “Examine the systemic failures exposed by recurrent NEET paper leaks and suggest a governance framework for examination integrity in India.”

National Testing Agency; autonomous body under **Ministry of Education**; incorporated as a Society under Societies Registration Act, 1860; established **November 2017**. **NEET-UG**: Mandated by Supreme Court in **Mohit Bindal v. Union of India (2016)** as the single medical entrance; replaced state-level exams. **CBT**: Computer-Based Testing — reduces physical paper leak risk; UPSC prelims uses OMR (not CBT); NTA's JEE Main already on CBT. **CBI jurisdiction**: CBI can register FIR on a state's request or court order under **Delhi Special Police Establishment Act, 1946**. **MCC**: Medical Counselling Committee — conducts centralized MBBS counselling post-NEET results; under DGHS, MoHFW.

## SC ON STRAY DOGS — EUTHANASIA PERMISSIBLE, ARTICLE 21 VS ANIMAL WELFARE

The **Supreme Court of India**, in a significant ruling in **May 2026**, held that **euthanasia of dangerous stray dogs is permissible** under strictly defined conditions, even as it acknowledged the animal welfare framework under the **Prevention of Cruelty to Animals Act, 1960**. The ruling attempts to balance **Article 21 (right to life and personal liberty)** of humans against compassion for animals, and interprets the **Animal Birth Control (ABC) Rules, 2023**.

### Background

- India has an estimated **35 million stray dogs** — the world's largest population; stray dog attacks kill approximately **20,000 people annually** and result in **~18–20 million animal bite cases** per year (WHO estimates).
- The **Prevention of Cruelty to Animals Act, 1960** (PCA Act) is the primary legislation; Section 11 prohibits cruelty to animals; the Act establishes the **Animal Welfare Board of India (AWBI)**.
- **ABC Rules 2023** (Animal Birth Control Rules, notified under PCA Act): mandate sterilisation and immunisation of stray dogs rather than culling; prohibit relocation and euthanasia except in specified circumstances (incurable disease/injury, rabid dogs).
- Prior Supreme Court and High Court rulings had generally interpreted ABC Rules as precluding euthanasia for “dangerous” dogs absent disease or injury — the May 2026 ruling modifies this.

### Key Facts

- **SC ruling**: Euthanasia permissible when a dog is **repeatedly dangerous** and **poses imminent threat to human life** — strict procedural safeguards required (veterinary certification, municipal authority approval, documentation).
- **Article 21 primacy**: Court held the **right to life of citizens** cannot be subordinated to animal welfare considerations when there is a clear and present danger; however, routine stray dog control must still follow ABC Rules sterilisation-first approach.

- **ABC Rules 2023 upheld in principle:** Court did not strike down ABC Rules; directed local bodies to implement sterilisation-immunisation drives more rigorously and set up **Dog Management Committees**.
- **Rabies context:** India accounts for ~**36% of global rabies deaths** (~18,000–20,000 per year); the National Rabies Control Programme targets elimination by 2030.
- **State powers:** Local bodies (municipal corporations/panchayats) have primary responsibility under Entry 5, List II (State List) — public health and sanitation.

### UPSC Angle

- **GS Paper 2 (Polity — Fundamental Rights):** Scope of Article 21; judicial balancing between competing rights; role of PIL in shaping animal welfare jurisprudence.
- **GS Paper 3 (Environment — Animal Welfare):** PCA Act 1960, ABC Rules 2023, AWBI, rabies control, biodiversity and urban ecology.
- **Prelims hooks:** PCA Act year (1960), ABC Rules year (2023), AWBI mandate, India's rabies death share (~36% globally), Article 48A (Directive Principle on animal protection).
- **Mains angle:** “Critically examine the tension between human safety and animal welfare in India's stray dog management policy, in light of recent Supreme Court directions.”

*Prevention of Cruelty to Animals Act; parent legislation for all animal welfare rules; **AWBI** (Animal Welfare Board of India) constituted under Section 4. **ABC Rules 2023:** Notified by MoFAHD (Ministry of Fisheries, Animal Husbandry and Dairying); replaced ABC Rules 2001; **sterilisation + rabies vaccination** is the mandated approach. **Article 48A:** Directive Principle — State shall endeavour to protect and improve the environment and safeguard forests and wildlife. **Article 51A(g):** Fundamental Duty — to protect and improve the natural environment including forests, lakes, rivers, and wildlife and to have compassion for living creatures. **Rabies:** Viral zoonotic disease; **100% fatal** once symptoms appear; preventable by pre- and post-exposure prophylaxis (PEP); WHO target: zero human deaths by 2030.*

## WHO DECLARES BUNDIBUGYO EBOLA PHEIC — DRC AND UGANDA OUTBREAK

*The **World Health Organization (WHO) Emergency Committee** declared a **Public Health Emergency of International Concern (PHEIC)** on **May 17, 2026** over an outbreak of **Bundibugyo ebolavirus (BDBV)** — a rare strain of Ebola — in **Ituri Province, Democratic Republic of Congo (DRC)**, with confirmed cross-border spread to **Kampala, Uganda**. This is the **third recorded BDBV outbreak** and the **ninth overall PHEIC** in WHO history. No licensed vaccine or specific treatment exists for the Bundibugyo strain.*

## Background

- **Ebolavirus genus** contains six species: *Zaire*, *Bundibugyo*, *Sudan*, *Tai Forest*, *Reston*, *Bombali*; **Zaire ebolavirus** causes the most severe disease (CFR up to 90%); BDBV CFR is approximately 25–36%.
- **Bundibugyo ebolavirus** was first identified in **2007** in Bundibugyo District, Uganda (first outbreak; 149 cases, 37 deaths); second outbreak occurred in DRC in **2012** (52 cases, 24 deaths).
- **IHR 2005 — Article 12:** Director-General of WHO may declare a PHEIC after convening an Emergency Committee if an event is “extraordinary” and “may constitute a public health risk to other States through international spread.”
- The **2014–16 West Africa Ebola epidemic** (primarily Zaire strain; 28,600 cases; 11,325 deaths) was the largest Ebola outbreak and the fifth PHEIC in WHO history.

## Key Facts

- **Current outbreak (as of declaration date, May 17, 2026):** DRC (Ituri Province) — 8 confirmed + 246 suspected cases; Uganda (Kampala) — 2 confirmed cases (cross-border spread via a traveller).
- **3rd ever BDBV outbreak:** First: Uganda 2007; Second: DRC 2012; Third: DRC–Uganda 2026.
- **9th PHEIC in WHO history:** H1N1 (2009), Polio (2014, ongoing), Ebola West Africa (2014), Zika (2016), Kivu Ebola (2019), COVID-19 (2020), Mpox (2022 and 2024), **BDBV 2026**.
- **No licensed BDBV vaccine:** Licensed vaccines (rVSV-ZEBOV / Ervebo; Ad26.ZEBOV + MVA-BN-Filo / Zabdeno-Mvabea) target **Zaire strain only**; cross-protection against BDBV is under investigation.
- **India risk: LOW** — no direct flights from Ituri Province; airport and port health surveillance activated under **International Health Regulations (IHR) 2005** obligations; ICMR–NIV Pune on alert.
- **Response mechanism:** WHO’s **Strategic Preparedness and Response Plan (SPRP)** activated; GAVI and CEPI fast-tracking BDBV vaccine research funding.

## UPSC Angle

- **GS Paper 2 (International Organisations — WHO):** PHEIC declaration mechanism (IHR 2005 Article 12), WHO Emergency Committee, history of PHEICs.
- **GS Paper 3 (Science & Technology — Disease):** Ebolavirus taxonomy, Bundibugyo strain characteristics, CFR, vaccine development gap.
- **Prelims hooks:** IHR 2005 Article 12, number of PHEICs declared (9th), BDBV outbreak count (3rd), DRC–Uganda geography, no licensed BDBV vaccine.

- **Mains angle:** “Evaluate the adequacy of international health governance mechanisms under IHR 2005 in responding to emerging infectious disease outbreaks like the 2026 Bundibugyo Ebola PHEIC.”

*Public Health Emergency of International Concern — highest alert level under IHR 2005; triggers international coordination, travel/trade guidance, and emergency funding. **IHR 2005:** International Health Regulations, 2005 — legally binding framework; 196 States Parties; Article 12 governs PHEIC declaration.*

**Bundibugyo ebolavirus:** Named after Bundibugyo District, Uganda; discovered 2007; RNA virus, family Filoviridae. **Zaire ebolavirus:** Most lethal strain; cause of 2014-16 West Africa epidemic; target of licensed vaccines (Ervebo). **ICMR-NIV Pune:** Indian Council of Medical Research — National Institute of Virology, Pune; India’s apex BSL-4 facility for dangerous pathogen diagnostics. **CEPI:** Coalition for Epidemic Preparedness Innovations; Oslo-based; finances vaccine development for epidemic threats; founded at Davos 2017.

## SMILE MISSION LAUNCHED — ESA-CHINA JOINT MAGNETOSPHERE SATELLITE

*The Solar Wind Magnetosphere Ionosphere Link Explorer (SMILE) — a joint mission of the European Space Agency (ESA) and the Chinese Academy of Sciences (CAS) — was launched on May 19, 2026 aboard a Vega-C rocket from the Guiana Space Centre (Kourou), French Guiana. SMILE will, for the first time, continuously image Earth’s magnetosphere using soft X-ray imaging, providing real-time global maps of magnetospheric dynamics — a breakthrough in space weather science.*

### Background

- **Earth’s magnetosphere** is the region of space dominated by Earth’s magnetic field; it deflects the **solar wind** (charged particles from the Sun) and shields life from harmful radiation. Disruptions — geomagnetic storms — can damage satellites, power grids, and GPS systems.
- The **solar wind–magnetosphere interaction** has never been imaged globally in real time; previous studies relied on point measurements from individual satellites (e.g., Cluster, THEMIS, MMS missions).
- **ESA-CAS cooperation:** SMILE was formally agreed in **2015**; it represents one of the largest ongoing ESA–China scientific collaborations.
- **Vega-C rocket:** ESA’s medium-lift launch vehicle; operated by **Arianespace** from Kourou; returned to service after a 2022 failure; this launch marks Vega-C’s operational reinstatement.

### Key Facts

- **Full name:** Solar Wind Magnetosphere Ionosphere Link Explorer (SMILE).

- **Partners:** ESA + Chinese Academy of Sciences (CAS) — Europe’s space agency and China’s top research institution.
- **Launch:** May 19, 2026; Vega-C rocket; Guiana Space Centre, Kourou, French Guiana.
- **Orbit:** Highly Elliptical Orbit (HEO) — apogee ~121,000 km, perigee ~5,000 km; 53-hour orbital period; allows extended observation of magnetosphere from outside.
- **Key instrument — Soft X-ray Imager (SXI):** Uses **lobster-eye optics** (micro-channel plate mirrors mimicking lobster-eye anatomy) to image soft X-rays emitted during solar-wind charge-exchange with magnetosphere.
- **Other instruments:** UV auroral imager (UVI), light ion analyser (LIA), magnetometer (MAG).
- **Mission duration:** 3 years (nominal).
- **Science goal:** Understand how Earth’s magnetic shield responds to solar wind variability in real time — vital for **space weather forecasting** and protecting critical infrastructure.

### UPSC Angle

- **GS Paper 3 (Science & Technology — Space):** ESA missions, space weather, magnetosphere science, X-ray astronomy instrumentation, India’s ISRO–ESA cooperation context.
- **GS Paper 2 (International Relations):** ESA–China scientific cooperation as an example of science diplomacy; contrast with geopolitical tensions.
- **Prelims hooks:** SMILE full form, ESA–CAS partnership, Vega-C rocket, lobster-eye optics, highly elliptical orbit, 3-year mission.
- **Mains angle:** “Space weather poses a growing threat to modern infrastructure. Discuss the significance of global collaborative missions like SMILE in advancing space weather preparedness.”

*European Space Agency; 22 member states; HQ Paris; operates Kourou (French Guiana) launch site. **CAS:** Chinese Academy of Sciences — China’s apex scientific body, equivalent to India’s CSIR system. **Vega-C:** ESA’s small-to-medium payload rocket; payload ~1,450 kg to SSO; returned to service 2025 after 2022 launch failure investigation. **Magnetopause:** The boundary between Earth’s magnetosphere and interplanetary space — where solar wind pressure balances Earth’s magnetic field. **Lobster-eye optics:** Micro-channel plate (MCP) technology mimicking the reflective geometry of lobster eyes to focus soft X-rays at shallow angles; pioneered by Roger Angel (1979). **Space Weather:** Disturbances caused by solar activity (CMEs, solar flares) affecting Earth’s magnetosphere; can disrupt GPS, HF radio, power grids, and satellite operations; monitored by NOAA’s Space Weather Prediction Center.*

## RAJNATH SINGH SEOUL — INDIA–SOUTH KOREA DEFENCE CYBER MOU AND THREE AGREEMENTS

Defence Minister Rajnath Singh visited Seoul, South Korea on May 19–20, 2026, signing three defence cooperation agreements with South Korea, the most significant being a **Defence Cyber Cooperation MoU** — the first of its kind between the two nations. The visit also covered the **KIND-X defence accelerator**, the second production batch of the **K9 Vajra-T self-propelled howitzer**, and bilateral cooperation in **UN Peacekeeping operations**.

### Background

- India–South Korea bilateral relations were elevated to a **Special Strategic Partnership** in 2015 during PM Modi’s Seoul visit; defence cooperation has been a pillar since.
- **K9 Vajra-T** self-propelled howitzer: Licensed production by L&T in India; first batch of 100 guns delivered to Indian Army by 2022 (contract signed 2017, ₹4,500 crore); second batch of 100 currently under negotiation — the Seoul visit provides political impetus.
- South Korea’s **Korea Trade-Investment Promotion Agency (KOTRA)** and India’s **DPIIT** have co-facilitated defence industrial collaboration under the **India-Korea Defence Industry Cooperation Framework**.
- Cyber threats to defence networks — supply chain attacks, adversarial AI, critical infrastructure targeting — have elevated **defence cyber cooperation** to a strategic priority globally.

### Key Facts

- **Agreement 1 — Defence Cyber Cooperation MoU:** Framework for real-time cyber threat intelligence sharing, joint incident response, capacity building, and protection of defence networks; signed with South Korea’s **Defense Acquisition Program Administration (DAPA)**.
- **Agreement 2 — NDC–KNDU Institutional Cooperation MoU:** National Defence College (India) and **Korea National Defense University (KNDU)** — exchange of defence research, officer training, strategic studies; signed to deepen people-to-people defence ties.
- **Agreement 3 — UN Peacekeeping Cooperation MoU:** Formalises coordination between India and South Korea in UN peacekeeping missions; both are top troop-contributing countries (India ranked 4th globally in UNPKF contributions, 2025).
- **KIND-X Defence Accelerator:** Korea-India defence innovation platform — joint defence startups, dual-use technology commercialisation; launched under 2025 defence industry framework.
- **K9 Vajra-T (second batch):** Negotiations ongoing for 100 additional guns under “**Make in India**” provisions; second batch expected to include higher indigenous content (from ~26% to ~40%).

- **Bilateral defence trade:** India–South Korea annual bilateral trade ~**USD 20 billion** (2024); defence share growing with K9, LCA Tejas export interest from Seoul.

### UPSC Angle

- **GS Paper 2 (International Relations — India’s bilateral relations):** India–South Korea Special Strategic Partnership, defence industrial cooperation, cyber diplomacy.
- **GS Paper 3 (Security — Cyber):** Importance of defence cyber MoUs, military cyber cooperation frameworks, India’s cyber security policy.
- **Prelims hooks:** K9 Vajra-T producer (L&T, licensed from Hanwha), India–S Korea partnership year (2015), DAPA full form, India’s UNPKF rank, KIND-X accelerator.
- **Mains angle:** “India’s defence partnerships in the Indo-Pacific are increasingly multi-dimensional. Analyse the strategic significance of India–South Korea defence cooperation with particular reference to the 2026 cyber MoU.”

*India-South Korea; upgraded in 2015 (previously Strategic Partnership since 2010). **K9 Vajra-T:** 155mm/52-calibre self-propelled howitzer; joint production by **L&T and Hanwha Defence (South Korea)**; deployed on Western and Northern borders. **DAPA:** Defense Acquisition Program Administration — South Korea’s procurement and R&D authority, equivalent to India’s **DRDO + DAP (Defence Acquisition Procedure)** combined. **India in UNPKF:** India has contributed over **2,75,000 troops** to UN Peacekeeping since 1950 — the highest cumulative figure globally; currently 4th in active deployments. **Cyber Warfare:** Under international law, cyber attacks on critical military infrastructure may constitute an armed attack triggering Article 51 (UN Charter) self-defence rights — ongoing debate in GGE (UN Group of Governmental Experts).*

## MAHARASHTRA NUCLEAR MOUS — 25,400 MW FOR ₹6.5 LAKH CRORE, VISION 2047

*The Maharashtra government signed a series of nuclear energy MoUs at a high-profile investment conclave in May 2026, aggregating to **25,400 MW of nuclear power capacity** worth approximately **₹6.5 lakh crore (USD ~78 billion)**. The agreements include the flagship **NPCIL–EDF Jaitapur Nuclear Power Project** (9,900 MW, EPR technology), a **NPCIL–NTPC joint venture (NPCIL–NTPC Nuclear Energy Limited, NNEL)**, and other nuclear supply chain partnerships — all aligned with India’s **Vision 2047** target to scale nuclear capacity to **100 GW by 2047**.*

### Background

- India’s current installed nuclear capacity: approximately **7,480 MW** (22 reactors; as of May 2026); share in total electricity generation: ~3%.

- **Vision 2047 nuclear target:** 100 GW nuclear by 2047 — requiring a ~13x increase from current capacity; demands massive investment and policy reform.
- **Jaitapur Nuclear Power Project (JNPP):** Proposed in **Ratnagiri district, Maharashtra**; 6 EPR (European Pressurized Reactor) units of **1,650 MW each = 9,900 MW** — would be the **world's largest nuclear power plant by capacity**; partnered with France's **EDF (Électricité de France)**.
- Key legislative hurdle: **Civil Liability for Nuclear Damage Act, 2010 (CLND Act)** — Section 17(b) provides operator's right of recourse against supplier in case of nuclear accident; foreign suppliers (EDF, Westinghouse) have sought modifications citing incompatibility with international norms (Vienna Convention on Civil Liability for Nuclear Damage, Paris Convention).
- **Atomic Energy Act, 1962:** Reserves nuclear power production for Central Government entities (NPCIL, BHAVINI); private sector cannot own/operate nuclear plants — reform of this Act is a prerequisite for broader investment.

### Key Facts

- **NPCIL–EDF Jaitapur MoU:** 9,900 MW (6 EPR-1750 units); capex estimated ₹1.5–2 lakh crore for Phase 1; under negotiation since 2008; MoU reaffirmed in 2026 with revised timeline; commercial operation target: first unit by **2035**.
- **NNEL (NPCIL–NTPC Nuclear Energy Ltd):** Joint venture of NPCIL (51%) and NTPC (49%) incorporated in 2023; will develop 5 GW of new nuclear capacity using **PHWR (Pressurised Heavy Water Reactor)** and SMR (Small Modular Reactor) technologies.
- **Total MoUs in Maharashtra package:** 25,400 MW; ₹6.5 lakh crore; includes nuclear supply chain (fuel fabrication, turbine supply, civil works) investments besides plant development.
- **CLND Act 2010:** Principal legal bottleneck; Section 17(b) “right of recourse” deters foreign suppliers; India has not joined the Vienna Convention on Civil Liability for Nuclear Damage — foreign firms cannot cap liability easily.
- **Atomic Energy Act 1962:** Only NPCIL (and BHAVINI for fast reactors) can own/operate nuclear plants; private sector role is limited to supply chain and ancillary services.
- **SMR opportunity:** India exploring domestic Small Modular Reactor (SMR) development through BARC/NPCIL; SMRs ( $\leq 300$  MW) are modular, faster to build, and suited for industrial heat applications.

### UPSC Angle

- **GS Paper 3 (Economy — Energy Security + Infrastructure):** Nuclear energy policy, Vision 2047, NPCIL, JNPP history, CLND Act 2010 constraints, Atomic Energy Act 1962.
- **GS Paper 2 (Governance — Legislative framework):** CLND Act reform debate, India's nuclear liability regime vs international norms.

- **GS Paper 2 (International Relations):** India-France nuclear cooperation (NSG waiver, IAEA safeguards, 123 Agreement equivalent with France), India-IAEA safeguards.
- **Prelims hooks:** JNPP capacity (9,900 MW, world's largest if built), EPR full form, CLND Act year (2010), Atomic Energy Act year (1962), NNEL composition (NPCIL 51% + NTPC 49%), current nuclear capacity (~7,480 MW), Vision 2047 target (100 GW).
- **Mains angle:** "India's nuclear energy ambitions face structural legislative constraints. Critically examine the CLND Act 2010 and the Atomic Energy Act 1962 as barriers to achieving the 100 GW nuclear target by 2047."

*Nuclear Power Corporation of India Limited; PSU under **Department of Atomic Energy (DAE)**; operates all civilian nuclear power plants in India. **BHAVINI:** Bharatiya Nabhikiya Vidyut Nigam Limited; under DAE; operates the **Prototype Fast Breeder Reactor (PFBR), Kalpakkam (Tamil Nadu)** – India's step towards the closed nuclear fuel cycle (Stage 2 of 3-stage programme). **India's 3-Stage Nuclear Programme:** Stage 1 – PHWRs using natural uranium; Stage 2 – Fast Breeder Reactors using Pu-239 from Stage 1; Stage 3 – Thorium-based reactors (India has world's 2nd largest thorium reserves). **EDF:** Électricité de France; French state-owned utility; designer of the EPR (European/Evolutionary Pressurized Reactor). **EPR technology:** Gen III+ reactor; 1,650 MW per unit; operating at Flamanville (France), Taishan (China), Hinkley Point C (UK under construction). **CLND Act 2010:** Civil Liability for Nuclear Damage Act; passed after intense debate; India the only NSG country with supplier liability provisions.*

TOPIC	KEY FACT
E30 Petrol / BIS	BIS gazette-notified IS specification for E30 (30% ethanol + 70% petrol); National Biofuel Policy 2018 is the parent policy; E20 achieved 2025; FFVs required for E30; ~₹200 cr forex saved per 1% blend increase
NEET-UG 2026 / NTA	CBI FIR for paper leak; NEET-UG shifts to CBT from 2027; K. Radhakrishnan Committee recommendations; NTA set up 2017 under Ministry of Education; 22+ lakh students affected
SC — Stray Dogs	Euthanasia permissible under strict conditions; Art. 21 primacy; ABC Rules 2023 upheld; PCA Act 1960; India ~35 mn stray dogs; ~36% of global rabies deaths
WHO Bundibugyo PHEIC	9th PHEIC in WHO history; 3rd BDBV outbreak (first 2007 Uganda); IHR 2005 Article 12; DRC Ituri + Kampala Uganda; no licensed BDBV vaccine; India risk LOW
SMILE Mission	ESA + CAS; launched May 19 on Vega-C from Kourou; Highly Elliptical Orbit; Soft X-ray Imager (SXI) with lobster-eye optics; 3-year mission; first global magnetosphere X-ray imager
Rajnath Singh Seoul	3 MoUs: Defence Cyber Cooperation, NDC–KNDU institutional, UN Peacekeeping; KIND-X accelerator; K9 Vajra-T second batch; India–S Korea Special Strategic Partnership (2015)
Maharashtra Nuclear MoUs	25,400 MW / ₹6.5 lakh crore; JNPP (9,900 MW EPR, EDF); NNEL (NPCIL 51% + NTPC 49%); Vision 2047 = 100 GW nuclear; CLND Act 2010 + Atomic Energy Act 1962 are key hurdles

Sources: [The Hindu](#), [Indian Express](#), [PIB](#)

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