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# Current Affairs Today – January 8, 2026

8 January 2026

**SUBJECTS COVERED**

SCIENCE &amp; TECH

ECONOMY

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SOCIAL ISSUES

SECURITY &amp; DEFENCE

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# Current Affairs Today — January 8, 2026

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## WHY IN NEWS

Indian Railways achieved 99.2% network electrification (69,427 of 70,001 route km). HPCL commissioned the world's first LC-Max Residue Upgradation Facility at its Visakhapatnam refinery (Rs 31,407 crore; capacity doubles to 15 MMTPA). HDFC Bank integrated the RBI's Digital Rupee into its SmartGateway merchant platform. JNCASR created the world's first computational simulation of the Mpemba Effect. The Adani Group commenced the 570 MW Wangchhu Hydropower Project in Bhutan (DGPC 51%; Adani Power 49%; BOOT model).

## MPEMBA EFFECT — JNCASR CREATES WORLD'S FIRST COMPUTATIONAL SIMULATION

Researchers from the **Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru** created the world's **first computational simulation** definitively proving the **Mpemba Effect** — the counterintuitive thermodynamic phenomenon where hot water can freeze faster than cold water under certain conditions.

### THE PHENOMENON AND ITS HISTORY

**Discovered:** 1969 by **Erasto Mpemba**, a Tanzanian secondary school student, while making ice cream (he noticed hot milk ice cream mix froze faster than cold mix)

**Scientific co-publisher:** Dr. Denis Osborne, who collaborated with Mpemba to publish the phenomenon

**Why it occurs:** Hot water loses **entropy** faster under specific conditions, accelerating the path to freezing — but this only occurs under precise circumstances (water composition, container shape, freezer settings)

**Not universal:** The effect is not consistent under all conditions, which is why it remained scientifically contested for 57 years

### JNCASR'S 2026 BREAKTHROUGH

The JNCASR team built the first mathematical computational model that **reproduces and explains** the Mpemba Effect under defined conditions

The simulation provides a **theoretical framework** that finally resolves decades of scientific controversy

Method: Non-equilibrium thermodynamics modelling; tested across multiple variable conditions

### About JNCASR:

**Location:** Jakkur, Bengaluru, Karnataka

**Established:** 1989; **Parent body:** Department of Science and Technology (DST), Government of India

**Type:** Autonomous research institution and deemed university

**Research focus:** Condensed matter physics, materials science, chemistry, neuroscience, ecology, theoretical sciences

**UPSC Angle:** GS-3 S&T — Indian research institutions; DST-funded institutions; non-equilibrium thermodynamics; entropy; Mpemba Effect; JNCASR's interdisciplinary research programme.

## ADANI GROUP COMMENCES 570 MW WANGCHHU HYDROPOWER PROJECT — BHUTAN

The **Adani Group** commenced construction of the **570 MW Wangchhu Hydropower Project** in **Chukha district, Bhutan** — a run-of-river hydropower project on the **Wangchu River** (which enters India as the Raidak River in West Bengal):

### PROJECT DETAILS

**Joint Venture:** **DGPC (Druk Green Power Corporation Ltd)** — 51% (Bhutan's state power utility); **Adani Power Limited** — 49%

**Investment:** ₹6,000 crore; **Model:** **BOOT** (Build, Own, Operate and Transfer)

**Capacity:** 570 MW (run-of-river — uses natural river flow; no large storage reservoir)

**Location:** Chukha district, southwestern Bhutan

**Significance:** Signals private capital mobilisation for India's strategic neighbourhood energy projects alongside SJVN (public sector)

### INDIA-BHUTAN HYDROPOWER FRAMEWORK

Bhutan is India's largest hydropower export partner. Under their bilateral energy cooperation, India finances and constructs hydropower projects in Bhutan, which then sells electricity back to India:

Project	Capacity	Status
Chukha HEP	336 MW	Operational (1988) — first large project
Kurichhu HEP	60 MW	Operational (2002)
Tala HEP	1,020 MW	Operational (2006) — largest completed
Mangdechhu HEP	720 MW	Operational (2019)
Punatsangchhu-I	1,200 MW	Under construction (delayed)
Punatsangchhu-II	1,020 MW	Under construction
Wangchhu HEP	570 MW	Construction commenced January 2026

**Bilateral target:** 10,000 MW under India-Bhutan energy agreement

**Key implementing body:** SJVN (Sutlej Jal Vidyut Nigam — Indian PSU) leads most government projects; DGPC (Druk Green Power Corporation) is Bhutan’s state power utility

**India-Bhutan Friendship Treaty:** Signed 1949; revised 2007 — provides for Indian financing of Bhutan’s development projects

**Bhutan currency:** Ngultrum (pegged 1:1 to Indian Rupee)

**UPSC Angle:** GS-2 IR — India-Bhutan bilateral relations; Neighbourhood First Policy; hydropower diplomacy; India-Bhutan Friendship Treaty; GS-3 Energy — run-of-river projects; India’s strategic energy partnerships; SJVN’s role; cross-border electricity trade.

## BIS LAUNCHES SHINE SCHEME — WOMEN EMPOWERMENT THROUGH STANDARDS TRAINING

The **Bureau of Indian Standards (BIS)** launched the **SHINE scheme — Standards Help Inform and Nurture Empowered Women** — to train women through partnerships with **NGOs and Self-Help Groups (SHGs)** on quality standards and consumer rights:

**Purpose:** Empower women as informed consumers and quality advocates; link them to India’s formal standards ecosystem

**Mode:** Training through NGO/SHG networks (leveraging the existing SHG infrastructure of NRLM/DAY-NRLM — National Rural Livelihoods Mission)

**Focus areas:** Consumer protection, ISI mark identification, product quality standards, grievance redressal mechanisms

### About BIS:

**Established:** Autonomous standards body under **BIS Act, 2016** (replaced BIS Act, 1986)

**Ministry:** Ministry of Consumer Affairs, Food and Public Distribution

**Key functions:** Framing Indian Standards; product certification (ISI mark); gold and silver hallmarking; consumer awareness programmes

**International linkages:** India is a member of **ISO** (International Organisation for Standardisation) and IEC

**UPSC Angle:** GS-2 Governance — Consumer protection framework; BIS Act 2016; consumer rights (Consumer Protection Act 2019); SHG ecosystem; women empowerment through standards; GS-1 Social Issues — women’s economic empowerment.

## MELGHAT TIGER RESERVE — MAHARASHTRA’S FIRST TIGER RESERVE

**Melghat Tiger Reserve in Maharashtra** was in the news for wildlife conservation updates:

**Location:** Gavilgarh Hills, a southern offshoot of the **Satpura Range**, Amravati district, Maharashtra

**Distinction: First tiger reserve established in Maharashtra;** one of the original nine tiger reserves under **Project Tiger (1973)**

**River ecosystem:** Catchment area for **five tributaries of the Tapti River** (Khandu, Khapra, Sipna, Gadga, Dolar) — ecologically significant river basin

**Wildlife:** Bengal tigers, leopards, sloth bears, wild dogs (dholes), gaur (Indian bison), Indian giant squirrel

**Management:** Under NTCA (National Tiger Conservation Authority) + Maharashtra Forest Department

**Vulture release (January 8, 2026): Bombay Natural History Society (BNHS)** released **15 critically endangered Indian vultures** at Melghat — major conservation milestone; Indian vulture population collapsed by 99%+ since 1990s due to **diclofenac** (veterinary NSAID) poisoning

**UPSC Angle:** GS-3 Environment — Project Tiger (launched April 1, 1973); original 9 tiger reserves; NTCA (statutory body under WPA 1972 amended 2006); Satpura Range ecology; Tapti River; Maharashtra biodiversity.

## INDIAN ARMY 2026 THEME — “YEAR OF NETWORKING AND DATA CENTRICITY”

The **Indian Army** declared **2026** as the “**Year of Networking and Data Centricity**” with focus on digital battlefield transformation:

**COAS:** General **Upendra Dwivedi** (Chief of Army Staff)

**Previous theme (2024-25):** “Year of Technology Absorption”

**Core concept:** Network-Centric Warfare (NCW) — links sensors, decision-makers, and weapon platforms through a unified communications network for superior battlefield awareness

**Key systems:** Battlefield Management System (BMS); Tactical Communication System (TCS); Army Tactical Telecom Node (ATTN)

**Strategic alignment:** Integration with theatre commands; joint data-sharing across Army, Air Force, and Navy

**UPSC Angle:** GS-3 Security — Indian Army modernisation; Network-Centric Warfare doctrine; theaterisation (integrated theatre commands); digital transformation in defence; indigenisation of communication platforms.

## GUINEA PRESIDENTIAL ELECTION — MAMADY DOUMBOUYA WINS

**Mamady Doumbouya** won Guinea’s presidential election with **86.72% of the vote** (provisional results), securing a **7-year mandate**:

**Background:** Doumbouya seized power through a **military coup in September 2021**, overthrowing President **Alpha Conde** (who had controversially extended his term)

**Country:** Guinea, West Africa; **Capital:** Conakry

**Resources:** Guinea holds the **world’s largest bauxite reserves** — significant for India which imports Guinean bauxite for aluminium production

### West African Coup Wave (2020–2023):

Country	Coup Year	Context
Mali	2020, 2021	Two successive coups
Guinea	2021	Alpha Conde third-term dispute
Burkina Faso	2022	Jihadist insurgency pretext
Niger	2023	France-aligned government removed

**Regional body:** ECOWAS (Economic Community of West African States) has imposed sanctions on several coup-affected members

**India angle:** India imports significant quantities of bauxite from Guinea; aluminium sector supply chain risk

**UPSC Angle:** GS-2 IR — African politics; ECOWAS; democratic backsliding; military coups and international law; India-Africa mineral resource trade; GS-3 Economy — bauxite imports; aluminium sector supply chain.

## NEW KATYDID SPECIES DISCOVERED IN JAMMU & KASHMIR

Researchers discovered **three new meadow katydid species** in **Jammu and Kashmir**:

*Conocephalus usmanii*

*Conocephalus nagariensis*

*Conocephalus gandarwali*

All belong to the **order Orthoptera** (related to grasshoppers and crickets). Katydid are acoustic insects and important indicators of grassland ecosystem health. Their discovery adds to J&K's documented biodiversity. India has been recording a high pace of new species discovery annually in recent years.

**UPSC Angle:** GS-3 Biodiversity — New species discovery protocol; Orthoptera order; high-altitude ecosystems; J&K biodiversity; taxonomic documentation; species as ecological indicators.

## WORLD BRAILLE DAY — JANUARY 4; INDIA'S FIRST UP BRAILLE LIBRARY

**World Braille Day** (January 4) was observed on its 8th annual observance:

**Significance:** Birth anniversary of **Louis Braille** (born January 4, 1809, Coupvray, France; invented Braille script in 1824 at age 15)

**India milestone:** India's **first Braille library** in Uttar Pradesh established at **Dr Shakuntala Mishra National Rehabilitation University, Lucknow**

**India's Disability Rights Framework:**

**RPwD Act 2016** (Rights of Persons with Disabilities): Expanded categories from **7 to 21** types of disabilities; mandates 5% reservation in government jobs and educational institutions

India ratified **UN CRPD** (Convention on Rights of Persons with Disabilities) in **2007**

**Accessible India Campaign (Sugamya Bharat Abhiyan):** Launched 2015; focuses on physical infrastructure and digital accessibility

**UPSC Angle:** GS-2 Social Issues — RPwD Act 2016; UN CRPD; Accessible India Campaign; disability rights framework; GS-1 — Louis Braille; accessible communication systems.

## INDIAN RAILWAYS — 99.2% NETWORK ELECTRIFICATION

India's railway network reached **99.2% electrification** as of November 2025 — one of the highest electrification rates globally:

### KEY STATISTICS

**Electrified network:** 69,427 Route Kilometres (RKMs) out of 70,001 total

**Remaining unelectrified:** 574 RKMs (0.8%) in 5 states: Assam (197 RKM), Karnataka (151 RKM), Tamil Nadu (117 RKM), Rajasthan (93 RKM), Goa (16 RKM)

**Electrified since 2014:** 46,900 RKMs added under current government

**Pace improvement:** 1.4 km/day (2004–14) → **15 km/day** (2019–25) — ~11x faster

**Historical progress:** 24% electrified (2000) → 40% (2017) → 96% (Dec 2024) → 99.2% (Nov 2025)  
**25 states** are now fully electrified

### RENEWABLE ENERGY COMPONENT

**Solar capacity:** 3.68 MW (2014) → **898 MW** (November 2025) — a **244x increase**

Global ranking: Surpasses China, France, UK, and Russia in railway electrification rate

**UPSC Angle:** GS-3 Infrastructure — Indian Railways electrification; renewable energy integration; Green Railways mission; National Railway Plan 2030; carbon emission reduction through electrification; Ashwini Vaishnaw (Railway Minister).

## HPCL LC-MAX FACILITY — WORLD'S FIRST RESIDUE UPGRADATION PLANT

**Hindustan Petroleum Corporation Limited (HPCL)** commissioned the world's **first and largest Liquid Conversion-Maximum (LC-Max) Residue Upgradation Facility** at its Visakhapatnam Refinery (January 5, 2026):

**Project:** Visakh Refinery Modernization Project (VRMP)

**Total investment:** **Rs 31,407 crore**

**Capacity expansion:** 8.33 MMTPA → **15 MMTPA** crude processing (81% increase)

**LC-Max processing:** 3.55 MTPA of heavy residue

**Conversion rate:** ~93% of low-value bottom-of-the-barrel heavy oils → high-value products

**Output:** Diesel, jet fuel (ATF), gasoil, middle distillates

**Location:** Visakhapatnam Refinery, Andhra Pradesh

**Significance:** India's refinery sector upgradation; reduces dependence on light crude imports; extracts maximum value from every barrel

**UPSC Angle:** GS-3 Economy — Petroleum sector; India's refinery capacity (250+ MMTPA); HPCL as Navratna PSU; upstream vs downstream oil sector; Visakhapatnam as energy hub; PLI for petroleum refining; energy security.

## HDFC BANK — DIGITAL RUPEE (₹) INTEGRATED INTO SMARTGATEWAY

**HDFC Bank** integrated the **RBI's Digital Rupee (₹)** — India's **Central Bank Digital Currency (CBDC)** — into its **SmartGateway** online merchant payment platform:

**SmartGateway:** HDFC Bank's payment gateway for merchants; now accepts Digital Rupee, UPI, cards, and net banking

**Transaction cost for merchants:** Zero (digital rupee payments are free for merchants)

**Settlement:** Intermediary-free (direct CBDC settlement unlike card payments through acquiring banks)

**RBI Digital Rupee (₹):** Pilot launched November 2022; CBDC that functions like a digital version of cash (stored in digital wallets; backed 1:1 by RBI)

**Significance:** Expands CBDC merchant acceptance; reduces payment intermediary costs

**UPSC Angle:** GS-3 Economy — CBDC (Central Bank Digital Currency); RBI's digital currency pilot; UPI vs CBDC distinction; payment ecosystem; financial inclusion; HDFC Bank's role in digital payments.

## DHARMENDRA PRADHAN — 55 LITERARY WORKS IN CLASSICAL INDIAN LANGUAGES

Union Minister **Dharmendra Pradhan** (Ministry of Education) released **55 scholarly literary works** in classical and major Indian languages (January 6, 2026):

**Languages covered:** Kannada, Telugu, Malayalam, Odia, Tamil, and **Indian Sign Language (ISL)**

**Source institutions:**

**CIIL (Central Institute of Indian Languages), Mysuru, Karnataka:** 41 books

**Central Institute of Classical Tamil (CICT), Chennai:** 13 books + a **45-episode Tirukkural Sign Language series**

**Notable texts published:** Madalapanji (Odia), Rudrasudhanidhi, Shilpa Shabdabali, Charyapada

**Classical language status context:** India currently has **6 classical languages:** Tamil (2004), Sanskrit (2005), Kannada (2008), Telugu (2008), Malayalam (2013), Odia (2014). Pali, Prakrit, Marathi, Bengali, and Assamese received Classical Language status in October 2024.

**UPSC Angle:** GS-1 History & Culture — Classical languages policy; India's linguistic diversity; criteria for Classical Language status (ancient texts; 1,500-2,000+ years literature heritage); CIIL's role; Sign Language as a medium; Tirukkural's UNESCO recognition; GS-2 Education policy — language preservation and promotion.

## DRDO 68TH FOUNDATION DAY — JANUARY 1, 2026

**DRDO (Defence Research and Development Organisation)** celebrated its **68th Foundation Day** (January 1, 2026) — marked by major procurement announcements:

**Inaugurated by:** Defence Minister **Rajnath Singh**; **Dr. Samir V. Kamat** (DRDO Chairman)

**AoN approvals: 22 Acceptances of Necessity (AoN)** worth approximately **Rs 1.30 lakh crore** — for next-generation defence systems

**Contracts signed: 11 defence contracts** worth **Rs 26,000 crore**

**Strategic focus areas:** Cyber warfare, Space, Artificial Intelligence

**Induction scope:** Armed Forces, CAPFs, Police Forces, NDRF

**DRDO founded:** January 1, 1958; under Ministry of Defence

**UPSC Angle:** GS-3 Security — DRDO's role in defence indigenisation; Acceptance of Necessity (AoN) in Defence Acquisition Procedure; Capital Acquisition vs Revenue Expenditure in defence; Atmanirbhar Bharat in defence; DRDO + TASL Pinaka MLRS overhaul (80% indigenous; range 120-300 km; development since 1989).

## PAKISTAN TESTS TAIMOOR AIR-LAUNCHED CRUISE MISSILE

**Pakistan Air Force (PAF)** successfully tested the **Taimoor Air-Launched Cruise Missile (ALCM)**:

**Developer:** Pakistan's **Air Weapons Complex**

**Launch platform:** **Mirage IIIE** fighter aircraft

**Type:** Turbojet-powered, **subsonic** cruise missile

**Range:** ~600 km

**Capability:** Operates at very low altitudes; designed to evade radar detection and air defence systems

**Targets:** Land and sea targets (dual-role)

**Significance:** Extends Pakistan's standoff strike capability; cruise missiles at low altitude are harder to intercept than ballistic missiles

**India context:** India's air defence umbrella (S-400 Triumf acquired from Russia; Aakash surface-to-air missile; multi-layered air defence) and its own cruise missile programme (BrahMos: ~900 km range; Nirbhay: sub-sonic LACM ~1,000 km range) are directly relevant.

**UPSC Angle:** GS-3 Security — India-Pakistan strategic competition; cruise missile vs ballistic missile distinction; ALCM capabilities; India's air defence systems; arms race dynamics; Pakistan's missile programme history.

## PERSONS IN NEWS

**Mamady Doumbouya** — President-elect of Guinea; came to power via 2021 coup; won presidential election January 2026 with 86.72% votes; 7-year mandate.

## UPSC RELEVANCE

Indian Railways electrification (99.2%; 69,427 RKMs electrified; 574 RKM remaining; 15 km/day pace 2019-25; solar 898 MW 244x increase; 25 states fully electrified); HPCL LC-Max Facility (world's first; Visakhapatnam; Rs 31,407 crore; VRMP; 8.33→15 MMTPA; 3.55 MTPA LC-Max; 93% conversion; diesel/jet fuel output); HDFC Bank CBDC SmartGateway (Digital Rupee e₹ integrated; zero merchant cost; intermediary-free settlement); Wangchhu HEP (DGPC 51% + Adani Power 49%; 570 MW; BOOT; Rs 6,000 crore; Chukha district Bhutan; Wangchu River = Raidak in India; tributary of Brahmaputra; DGPC); Mpemba Effect (JNCASR Bengaluru; DST; Erasto Mpemba 1969; entropy; first computational simulation; published in Communication Physics); Melghat Tiger Reserve (15 Indian vultures released by BNHS; critically endangered; diclofenac poisoning collapse; Gavilgarh Hills; Satpura Range; first Maharashtra TR; Project Tiger 1973; Tapti tributaries Khandu/Khapra/Sipna/Gadga/Dolar); DRDO 68th Foundation Day (Jan 1 2026; Rajnath Singh; 22 AoN Rs 1.30 lakh crore; 11 contracts Rs 26,000 crore; Pinaka MLRS TASL 80% indigenous); Classical languages literary works (Dharmendra Pradhan; 55 works; Jan 6 2026; CIIL Mysuru 41 books; CICT Chennai 13 books + Tirukkural Sign Language 45 episodes; Kannada/Telugu/Malayalam/Odia/Tamil/ISL); Pakistan Taimoor ALCM (Air Weapons Complex; Mirage IIIE; 600 km; subsonic; low-altitude); BIS SHINE (Standards Help Inform and Nurture Empowered Women; BIS Act 2016; NGOs + SHGs); Indian Army 2026 NCW theme (Gen Upendra Dwivedi; BMS/TCS/ATTN); Guinea election (Mamady Doumbouya 86.72%; Alpha Conde; coup 2021; bauxite); Katydid J&K (Conocephalus usmanii/nagariensis/gandarwali; Orthoptera); World Braille Day (Jan 4; Louis Braille 1809; RPwD Act 2016 7→21 disabilities)

### MAINS GS-2:

India-Bhutan hydropower cooperation and Neighbourhood First Policy | Military coups in West Africa — ECOWAS response and democratic legitimacy | Consumer protection framework — BIS and standards ecosystem

### MAINS GS-3:

Indian Railways electrification — Green Railways and carbon neutrality target | India's refinery capacity expansion and energy security | CBDC adoption challenges and opportunities | Project Tiger and vulture conservation | India-Pakistan strategic competition — cruise missile proliferation

## ★ FACTS CORNER — KNOWLEDGE PEDIA

### **MPEMBA EFFECT — JNCASR:**

Phenomenon: Hot water can freeze faster than cold water under certain conditions

Observed first: 1969 by Erasto Mpemba (Tanzanian student) while making ice cream

Scientific basis: Hot water loses entropy faster; accelerates path to freezing under specific conditions

Not universal: Occurs only under precise conditions — not a general law

2026 breakthrough: JNCASR Bengaluru — first computational simulation proving the effect

JNCASR: Jawaharlal Nehru Centre for Advanced Scientific Research; Jakkur, Bengaluru; founded 1989; under DST; autonomous + deemed university

### **WANGCHHU HYDROPOWER PROJECT:**

Developer: DGPC (51%) + Adani Power (49%); first major private Indian investment in Bhutan hydro; BOOT model

Investment: Rs 6,000 crore

Capacity: 570 MW; run-of-river (no large reservoir)

Location: Chukha district, Bhutan; River: Wangchu (called Raidak in India — West Bengal; tributary of Brahmaputra)

Commenced: January 2026

Bilateral target: 10,000 MW (India-Bhutan energy agreement)

SJVN: Sutej Jal Vidyut Nigam — Indian PSU leading most Bhutan hydro projects

DGPC: Druk Green Power Corporation — Bhutan's state power utility

India-Bhutan Treaty: 1949 (revised 2007); enables Indian financing of Bhutan's development

Bhutan Ngultrum: Pegged 1:1 to Indian Rupee; hydro revenue = ~25-30% of Bhutan GDP

### **INDIA-BHUTAN HYDROPOWER PROJECTS (KEY DATA):**

Chukha: 336 MW; 1988 (first large project)

Kurichhu: 60 MW; 2002

Tala: 1,020 MW; 2006 (largest completed)

Mangdechhu: 720 MW; 2019

Punatsangchhu-I: 1,200 MW (under construction)

Punatsangchhu-II: 1,020 MW (under construction)

### **BIS SHINE SCHEME:**

Full form: Standards Help Inform and Nurture Empowered Women

Body: Bureau of Indian Standards (BIS); Ministry of Consumer Affairs, Food and Public Distribution

BIS Act: 2016 (replaced 1986 Act); product certification includes ISI mark; gold/silver hallmarking

India-ISO: India is a member of ISO (International Organisation for Standardisation) and IEC

### **MELGHAT TIGER RESERVE:**

State: Maharashtra; Location: Gavilgarh Hills, southern offshoot of Satpura Range

Distinction: First tiger reserve in Maharashtra; one of original 9 (Project Tiger 1973)

River: Catchment for 5 tributaries of Tapti River

Vulture conservation: BNHS released 15 critically endangered Indian vultures (*Gyps indicus*) here; diclofenac poisoning caused 99% population collapse in 1990s-2000s

Project Tiger: Launched April 1, 1973; currently 53+ tiger reserves across India

India tiger population: 3,167 (2022 census); target 6,000 by 2030

#### **GUINEA PRESIDENTIAL ELECTION:**

Winner: Mamady Doumbouya; 86.72% (provisional); 7-year mandate

Background: Led coup September 2021; ousted President Alpha Conde (disputed 3rd term)

Capital: Conakry; Location: West Africa; ECOWAS member

Resources: World's largest bauxite reserves; iron ore (India imports Guinean bauxite)

West Africa coups: Mali (2020, 2021), Guinea (2021), Burkina Faso (2022), Niger (2023)

#### **INDIAN RAILWAYS ELECTRIFICATION:**

Status: 99.2% electrified (69,427 out of 70,001 RKM)

Remaining: 574 RKM in 5 states — Assam (197), Karnataka (151), Tamil Nadu (117), Rajasthan (93), Goa (16)

Pace: 15 km/day (2019-25) vs 1.4 km/day (2004-14) — 11x faster

Added since 2014: 46,900 RKM; 25 states now fully electrified

Solar capacity on railways: 898 MW (244x increase since 2014); was 3.68 MW in 2014

Global standing: Surpasses China, France, UK, Russia in electrification rate

#### **HPCL LC-MAX FACILITY — WORLD'S FIRST:**

Full name: Liquid Conversion-Maximum Residue Upgradation Facility

Location: Visakhapatnam Refinery, Andhra Pradesh

Project: Visakh Refinery Modernization Project (VRMP)

Investment: Rs 31,407 crore

Capacity: 8.33 MMTA → 15 MMTA crude processing (81% increase)

LC-Max: Processes 3.55 MTPA heavy residue; ~93% conversion to diesel, ATF, middle distillates

Significance: World's first facility of this type; reduces India's dependence on light crude imports

HPCL: Hindustan Petroleum Corporation Limited; Navratna PSU; under Ministry of Petroleum

#### **HDFC BANK CBDC SMARTGATEWAY:**

Product: SmartGateway payment gateway — first to integrate Digital Rupee (₹)

Digital Rupee (₹): RBI's CBDC; pilot launched November 2022; stored in digital wallets; backed 1:1 by RBI

Merchant cost: Zero for digital rupee transactions (vs fees for card payments)

Settlement: Intermediary-free (direct central bank-backed settlement)

CBDC vs UPI: CBDC = digital cash (no bank account needed); UPI = bank account transfer

#### **DHARMENDRA PRADHAN — CLASSICAL LANGUAGE LITERARY WORKS:**

Total works: 55 literary/scholarly works released (January 6, 2026)

CIIL (Central Institute of Indian Languages), Mysuru: 41 books — Kannada, Telugu, Malayalam, Odia

CICT (Central Institute of Classical Tamil), Chennai: 13 books + 45-episode Tirukkural Sign Language series

Languages: Kannada, Telugu, Malayalam, Odia, Tamil, Indian Sign Language (ISL)

Classical Language status (original 6): Tamil (2004), Sanskrit (2005), Kannada (2008), Telugu (2008), Malayalam (2013), Odia (2014)

Added October 2024: Pali, Prakrit, Marathi, Bengali, Assamese

Criteria: 1,500-2,000+ years of ancient literature/texts; rich heritage

#### **DRDO 68TH FOUNDATION DAY:**

Founded: January 1, 1958; under Ministry of Defence; HQ: New Delhi

Chairman: Dr. Samir V. Kamat; inaugurated by Rajnath Singh (Defence Minister)

AoN approvals: 22 Acceptances of Necessity (AoN) worth Rs 1.30 lakh crore

Contracts signed: 11 defence contracts worth Rs 26,000 crore

Key system: Pinaka MLRS (TASL upgrade; 80% indigenous content; range 120-300 km; development since 1989)

AoN: First formal approval in Defence Acquisition Procedure (DAP) — approves the need for equipment

Focus areas announced: Cyber warfare, Space, Artificial Intelligence

#### **PAKISTAN TAIMOOR ALCM:**

Type: Air-Launched Cruise Missile (ALCM); turbojet-powered; subsonic

Developer: Air Weapons Complex (Pakistan)

Launch platform: Mirage IIIE fighter aircraft

Range: ~600 km; very low-altitude flight (radar-evading)

India comparison: BrahMos (~900 km; supersonic; India-Russia joint); Nirbhay (subsonic LACM; ~1,000 km)

India's air defence: S-400 Triumf (Russian); Aakash SAM (indigenous); multi-layered systems

#### **OTHER RELEVANT FACTS:**

RPwD Act 2016: Replaced Persons with Disabilities Act 1995; expanded disability categories from 7 to 21; 5% reservation in govt jobs and education; India ratified CRPD 2007

World Braille Day: First observance January 4, 2019 (UN Resolution A/RES/73/161, December 2018)

Louis Braille: Born January 4, 1809; lost sight by age 5; invented Braille 1824 (age 15); died January 6, 1852

PMMVY: Pradhan Mantri Matru Vandana Yojana; launched January 1, 2017; completed 9 years January 1, 2026; ₹5,000 for first child; ₹6,000 for second girl child; under Mission Shakti (sub-scheme "Samarthya")

NCW (Network-Centric Warfare): Doctrine linking sensors, commanders, and shooters via digital communications for unified battlefield awareness and superior decision speed

Sources: GKToday, AffairsCloud, PIB

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