



DAILY CURRENT AFFAIRS 24-04-2026

Mapping Perspective

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Prelims Perspective

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Druzhba Pipeline

Syllabus: Prelims Bits – Mapping.

Context:

- The **Druzhba pipeline** that carries Russian oil through Ukraine to Hungary and Slovakia has been repaired and can resume operations, as announced by Volodymyr Zelensky, ending a months-long standoff between Kyiv and Budapest.

About Druzhba Pipeline



Overview

- The **Druzhba Pipeline (Friendship Pipeline)** is one of the biggest crude oil pipeline networks in the world.
- Built in the 1960s to supply oil from the USSR to countries in Europe.
- Today, it is the largest principal artery for transportation of Russian (and Kazakh) oil across Europe.

Length and Capacity

- Total length (including all branches): around **5500 km**.

- Current capacity: **1.2–1.4 million barrels/day** (expandable up to **2 million barrels/day**).

Origin and Route

- Official beginning: **Almetyevsk** (junction of pipelines from Siberia, the Urals, and the Caspian Sea).
- Runs to **Mozyr**, where it splits into northern and southern branches.

Branch-wise Distribution

Northern Branch

- Route: Belarus → Poland → Germany.

Southern Branch

- Runs through Ukraine → splits at **Uzhgorod** into:
 - **Druzhba 1** → Slovakia → further splits to Czech Republic and Hungary.
 - **Druzhba 2** → Hungary.

Significance

- Critical energy infrastructure linking Russia with Central and Eastern Europe.
- Strategic leverage in geopolitics, especially amid Russia-Ukraine conflict.
- Ensures energy security for landlocked European countries like Hungary and Slovakia.

Santiaguito Volcano

Syllabus: GS-1: Physical Geography – Volcanoes.

Context:

- A group of hikers were forced to flee as the volcano erupted recently, throwing rocks into the air around them

About Santiaguito Volcano

Location & Origin

- It is an active volcano located in western Guatemala near the city of Quetzaltenango
- It was created in the wake of the Santa María Volcano's 1902 eruption



1902 Eruption (Parent Volcano)

- This eruption destroyed Santa María's former summit and left some 5,000 people dead
- It was one of the largest eruptions of the 20th century

Formation & Evolution

- Since then, new lava domes have grown inside the trench left by this eruption
- Santiaguito is the youngest of these domes, having been created around 1922
- The massive Santiaguito dome complex has been growing ever since and is accompanied by continuous explosions, most of them minor

Volcanic Characteristics

- The Santiaguito lava-dome complex is one of the most active volcanic areas in Guatemala and worldwide
- It belches smoke and ash on a regular basis but sometimes emits lava and pyroclastic flows
- It reaches about 2,500 meters (8,202 feet)
- It currently has four craters, one of which is active
- This gives it a completely different appearance than most volcanoes; it resembles a large rock with multiple peaks

Major Eruptions & Impacts

- The last major explosion occurred on April 25, 2010, when 10 people were killed by falling rocks after an eruption
- The deadliest explosion occurred in 1929, when more than 2500 people were killed

Mookambika WLS

Syllabus: GS-3: Environment – Protected Areas – WLS

Context:

- Sewage from commercial activities related to religious tourism in Kollur has emerged as a threat to the sanctuary in Udupi district
- The depleted Souparnika river carries sewage and sludge to the core area during summer

About Mookambika Wildlife Sanctuary



Location and Extent

- Located in the Udupi district of Karnataka
- Set in the Western Ghats, covering an area of approximately 370 sq. km

Nomenclature and Cultural Link

- Named after the presiding deity of the KollurMookambika Temple located within its boundaries

Ecological Significance

- Forms a vital connecting link between Someshwara Wildlife Sanctuary (south) and Sharavathi Wildlife Sanctuary (north)
- Enhances landscape connectivity in the Western Ghats

Physiography and Rivers

- Kodachadri Peak lies at the heart of the sanctuary, often referred to as a “botanical paradise”
- Two significant rivers: River Chakra and River Souparnika

Waterfalls

- Home to waterfalls such as Koosalli waterfalls and Belkal Theertha waterfalls

Vegetation

- Mix of evergreen, semi-evergreen, and moist deciduous forests
- Covers steep slopes typical of the Western Ghats Mountains

Flora

- Eminent tree species include Dipterocarpus indicus, Calophyllumtomentosum, and Hopea parviflora
- Presence of rare climber species Cosciniumfenestratum
- Small patches of teak plantations also present

Fauna

- Presence of rare species: slender loris and lion-tailed macaque
- Large mammals include tiger, leopard, sloth bear, gaur
- Other fauna: sambar deer, chital, wild pig, barking deer, porcupine, otter

Analytical Note (UPSC Relevance)

- Issue highlights human-induced pressure (religious tourism → sewage discharge → river pollution → core area impact)
- Demonstrates linkage between river health and protected area ecology
- Raises concerns of habitat degradation during lean flow (summer), requiring integrated conservation and tourism management

Judicial Accountability

Syllabus: GS-2: Indian Polity – Judiciary.

Context:

- Resignation of Justice Yashwant Varma during an ongoing inquiry has raised questions about judicial accountability and fate of such investigations
- Highlights institutional gaps in handling resignation during impeachment proceedings

Removal of Judges in India: Constitutional Framework

- Governed by **Article 124(4)** (Supreme Court) and **Article 217** (High Court)
- Ensures **judicial independence + accountability mechanism**
- Grounds of removal: **proved misbehaviour or incapacity**
- Process is **deliberately rigorous** to prevent arbitrary removal

Procedure of Removal

- Initiation: **Motion in Parliament**
- If admitted → **3-member inquiry committee** under Judges (Inquiry) Act, 1968
- Committee **investigates charges and submits report**
- If charges proved → **Both Houses pass removal motion with special majority**
- Final step: **Removal by the President**
- Ensures **separation of investigative stage and political decision-making stage (institutional balance + due process)**

Judges Inquiry Committee: Structure and Functioning

- Composition: **Supreme Court judge + High Court Chief Justice + distinguished jurist**
- Role: **Central fact-finding body**
- Functions:
 - Conducts hearings, examines witnesses, reviews evidence
 - Proceedings often **in-camera (confidentiality)**
- Operates under **statutory framework + principles of natural justice**
- Ensures **opportunity of defence to the concerned judge**
- Outcome determines **whether Parliament proceeds with impeachment**

Issue of Resignation During Inquiry

- **Legal ambiguity:** Constitution & Judges (Inquiry) Act do not clarify continuation of inquiry after resignation
- **Past practice inconsistent:**
 - Some cases → inquiry discontinued
 - Others → inquiry continued and findings submitted

Concerns & Arguments

- Investigative stage is **independent and serves public purpose (truth + accountability)**
- Even if removal becomes redundant, inquiry helps **establish institutional credibility**
- Automatic termination → may allow **strategic resignation to avoid adverse findings**
- Raises concerns of **moral hazard and erosion of public trust**

News Summary: Justice Yashwant Varma Case

- Allegations: **Unaccounted cash found at official residence after fire incident**
- Inquiry: Committee constituted under Judges (Inquiry) Act, 1968
- Proceedings:
 - Multiple **in-camera hearings + witness examination**
 - Assisting counsel claimed **evidence sufficient to substantiate charges**
- Charges included:
 - Possession of unexplained cash
 - Interference with material evidence
 - Furnishing misleading explanations
- Inquiry stage: **Advanced stage, about to enter defence phase**

Resignation and Its Implications

- Justice Varma **resigned during inquiry**, alleging procedural unfairness
- Committee view: **Impeachment applies only to sitting judge → proceedings closed**
- Report submitted to **Lok Sabha**

Government & Legal Position

- Union government **rejected bias allegations and defended inquiry**
- Resignation **does not end accountability completely**:
 - Criminal proceedings may be initiated under **ordinary law (subject to approval)**

Way Forward

- Case exposes **gap in legal framework on post-resignation inquiries**
- Key debate: Should **resignation terminate statutory inquiry?**
- Need for:
 - **Clarity in law** on continuation of inquiry
 - Safeguards against **misuse of resignation to evade findings**
 - Strengthening **judicial accountability without compromising independence**

3D Glass Semiconductor

Syllabus: GS-3: Indian Economy – Industry – Electronics.

Context:

- Foundation stone for India's first advanced **3D chip packaging unit** laid in **Bhubaneswar, Odisha**
- Approved under **India Semiconductor Mission (ISM)** at a cost of ₹1,934 crore
- Facility led by **3D Glass Solutions** with investments from **Intel, Lockheed Martin,** and VC/PE funds
- Described as a project placing India "at the cutting edge of technology" in advanced chip packaging

Semiconductors – Meaning & Significance

- Semiconductor: material (usually silicon) that conducts electricity under certain conditions — foundation of modern electronics
- Chips (integrated circuits): tiny semiconductor devices that process and store information
- Applications: smartphones, laptops, missiles, satellites, cars, ATMs
- Strategic importance: countries with chip design & manufacturing capability hold technological, economic, and strategic power

Moore's Law & Emerging Limitations

- **Moore's Law** (1965, **Gordon Moore**): transistors on a chip double every ~2 years → exponential computing growth & cost reduction
- Earlier trend: chips became smaller, faster, cheaper
- Present constraint: physical & thermal limits → shrinking transistors indefinitely not feasible
- Industry shift: alternative approaches — advanced packaging, chiplets, 3D integration

3D Glass Advance Packaging
Bhubaneswar, Odisha

Technology Partner:
In-house Technology

Capacity: **120 Million**
units per year

Technology: Glass substrate
ATMP & 3DHI modules

Employment:
Approx. **284 Jobs**

Applications: HPC/AI
compute, RF,
Automotive, Sensors,
Quantum, Bio-Med.

Bhubaneswar,
Odisha

Traditional Chips vs 3D Glass Chips

Traditional Chips

- Built on silicon wafers with planar (2D) arrangement
- Increasing density leads to limits: space constraints, overheating, signal interference

3D Glass Chips – Next Generation

- Vertical stacking (like skyscrapers vs bungalows) → higher computing power within same footprint

Key Advantages

- Better thermal stability — glass dissipates heat efficiently
- Lower signal loss — cleaner signal transmission
- Higher precision — supports finer chip nodes
- Heterogeneous Integration — combines logic, memory, sensors in single 3D package → faster AI, efficient data centres, advanced defence electronics
- Odisha facility uses **glass substrates + 3D Heterogeneous Integration (3DHI)** → globally cutting-edge

Odisha 3D Glass Packaging Facility – Key Facts

- Location: Bhubaneswar, Odisha
- Cost: ₹1,934 crore
- Technology: 3D Glass Chip Packaging + 3DHI modules
- Lead: 3D Glass Solutions (USA)
- Investors: Intel, Lockheed Martin, VC/PE funds
- Applications: AI, 5G, Defence, Data Centres
- Unique Feature: only project among ISM approvals focusing on **truly advanced packaging** → strategically distinct

India Semiconductor Mission (ISM) – Overview

- Launched: 2021
- Outlay: ₹76,000 crore
- Objective: build full-stack semiconductor ecosystem — fabrication, packaging, testing, design, display manufacturing

Key Achievements

- 10 semiconductor projects approved across 6 states
- Investments attracted: > ₹1.6 lakh crore
- Major projects:
 - Chip fabrication plant by Tata Group
 - OSAT units including **Micron Technology**
 - Odisha 3D glass packaging facility

OSAT (Outsourced Semiconductor Assembly and Test)

- Stage after fabrication → chips assembled into usable packages & tested

- India currently has higher OSAT capacity than fabrication capacity → reflects position in value chain

ISM 2.0 - Emerging Direction

- Proposed outlay: ~\$11 billion
- Shift: from plant creation → ecosystem-wide strengthening of semiconductor supply chain
- Indicates transition toward a more mature industrial strategy

Conclusion

- Technological: India moving from basic assembly to **cutting-edge packaging technologies**
- Strategic: investments by Intel & Lockheed Martin indicate global confidence, including defence relevance
- Economic: ISM represents **industrial policy intervention** to build strategic sectors beyond private sector capacity
- Geopolitical: reducing dependence on imports (notably Taiwan & China) → enhances supply chain resilience and strategic autonomy