DAILY CURRENT AFFAIRS 21-07-2025

GS-1

1. **Raji Tribe**
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Raji Tribe

Syllabus: GS-1; Tribes -Cultural assimilation and identity loss, Essay-Tribal marginalization and inclusion

Context

- In Khetar Kanyal, a village dominated by the Raji tribe in Uttarakhand's Pithoragarh district, the **absence of a female candidate for the village head (pradhan) reveals a deeper crisis.**

Know more

- Under Uttarakhand's **three-tier Panchayat Act,** candidates must have at least an eighth-grade education, a requirement no woman in this Raji community meets.
- This led to the postponement of local elections, highlighting the tribe's severe educational, social, economic, and political marginalisation

About

- Tribe Name**: Raji (also called Bot Tho or Forest People)**
- State: Primarily in **Uttarakhand** (Pithoragarh, Champawat districts), some presence in western Nepal
- Classification: Particularly Vulnerable Tribal Group **PVTG** under the Scheduled Tribes ST category
- Population: Extremely small tribal group with only a few hundred families

Cultural Aspects

- Language: **Raji language** belongs to the Tibeto-Burman family, but many are shifting to Kumaoni and Hindi
- Religion: **Nature worshippers,** also practice Hinduism with local deities and rituals
- Lifestyle: **Traditionally hunter-gatherers**, known for monkey hunting now prohibited and collecting forest produce like honey and herbs
- Housing: Earlier lived in caves and temporary shelters, now being settled in government-constructed homes

Livelihood

- Traditionally: Subsistence on forest produce and monkey hunting now banned
- Now: Agriculture marginal, manual labor, basket weaving, and some government jobs due to welfare schemes
- Handicrafts include wooden items and bamboo baskets

Government Interventions

- PVTG Status: Given due to their declining population, low literacy, and primitive livelihoods
- Schemes for Welfare:
  - Vanbandhu Kalyan Yojana
  - Tribal Sub-Plan TSP
  - Development of PVTGs Scheme focused on education, health, housing, land, and livelihood
  - Free housing under PM Awas Yojana Gramin in tribal areas

Issues and Challenges

- Loss of traditional lifestyle due to forced settlement
- Poor access to healthcare and education
- Threats to their language and culture
- Economic vulnerability and dependency on state aid

Port of Eilat

Syllabus: GS-1; Geography (Ports, trade routes).GS-2; International Relations

Context

- The southern port of Eilat is calling on the government to help avert imminent closure, with the debt-ridden seaport on the verge of financial collapse due to the disruption of maritime trade routes caused by continued attacks by Yemen's Iran-backed Houthis on ships in the Red Sea.

Location:

- Situated at the northern tip of the **Red Sea** in the **Gulf of Aqaba**, **southern Israel**.
- It is **Israel's only port on the Red Sea**.

Strategic Importance:

- **Geo-strategic location**:
  - Offers Israel **access to the Indian Ocean** without crossing the Suez Canal.
  - Crucial for **trade with Asian and African countries**.

- Close to **maritime chokepoints** like the **Bab-el-Mandeb Strait**, linking the Red Sea to the Arabian Sea.

Economic Role:

- Primarily used for **imports of oil**, **automobiles**, and **phosphate exports**.
- Facilitates **cargo traffic** that avoids congestion in the Mediterranean ports.

Security and Diplomatic Aspects:

- **Near the borders** of **Egypt and Jordan**; hence sensitive in terms of **border security** and **regional diplomacy**.
- Subject to the dynamics of the **Arab-Israeli conflict**.
- Also features in regional **maritime trade corridors**, including India-Middle East-Europe Economic Corridor (IMEC) proposals.

Environmental Concerns:

- Located in a **coral reef-rich area**, raising concerns about **marine pollution** due to port activity.
- Environmentalists have raised concerns regarding **expansion projects**.

Exercise Prachand Shakti

Syllabus: GS-2; International Relations

Context:

- The exercise was part of the Indian Army's broader initiative called the **"Year of Tech Absorption"**.
- This aims to **encourage the use of indigenous and advanced tech** in military operations.
- Promotes collaboration with **Indian start-ups and civilian tech innovators** under the **Atmanirbhar Bharat** vision.

What is Exercise Prachand Shakti?

- A large-scale military demonstration by the **Indian Army's Ram Division**.
- Conducted at the **Kharga Corps Field Training Area** in **Meerut, Uttar Pradesh**.
- Aimed to showcase how modern technologies are being integrated into real battlefield scenarios.

Objective of the Exercise

- To **demonstrate the use of disruptive technologies** in modern combat by **infantry units**.
- Focused on **deep offensive operations**, typically carried out by the Army's **Strike Corps** (which are offensive formations used to penetrate deep into enemy territory).
- The idea is to improve:
    - **Agility** – Faster movement and quick decision-making on the battlefield.
    - **Lethality** – More effective and precise destruction of enemy targets.
    - **Survivability** – Better protection and survival of soldiers using tech solutions.

Key Technologies Demonstrated

- **Unmanned Aerial Vehicles (UAVs):** Used for surveillance, targeting, and even offensive roles.
- **AI-enabled Systems:** Help with decision-making, target identification, and battlefield planning.

- **Loitering Munitions:** Drones that can hover over a target area and strike when the target is identified.
- **Autonomous Platforms:** Robotic vehicles or systems that can operate without direct human control.

These technologies reflect a shift from traditional to **technology-centric warfare**.

Strategic Significance

- Shows India's preparedness for **future wars** where technology will dominate.
- Reflects the Army's shift from **manpower-intensive to technology-driven** strategies.
- Supports **network-centric warfare**, where all units share data and intelligence in real-time.
- Enhances coordination across the Army, Air Force, and Navy (jointness).

European Free Trade Association (EFTA)

Syllabus: GS-3: Indian Economy - Trade Agreements.

Context:

Union Minister of Commerce and Industry, Piyush Goyal, today said the Free Trade Agreement between India and the four-nation European bloc 'European Free Trade Association' (EFTA), will be implemented from 1st October.

What is EFTA?

- **EFTA (European Free Trade Association)**: A regional trade organization of 4 non-EU European countries:
  - **Switzerland**, **Norway**, **Iceland**, **Liechtenstein**
- Established in **1960** to promote free trade and economic integration.

India-EFTA TEPA Highlights

- **Signed**: March 10, 2024
- **Aim**: To promote **trade and investment** between India and EFTA countries.
- **Historic**: India's **first modern FTA** with a bloc of developed nations.

Key Features of the Agreement

Investment Commitments

- EFTA pledged **$100 billion investment** in India over 15 years.
- India aims to create **1 million+ jobs** through this investment.

Market Access

- Elimination or reduction of **tariffs** on key goods.
- Greater access for Indian exporters to **pharmaceuticals, chemicals, gems and jewellery, textiles**, etc.
- Indian services (e.g., IT, healthcare) gain **preferential access** to EFTA markets.

Intellectual Property Rights (IPR)

- India has committed to an **IPR regime** aligned with TRIPS but **without TRIPS Plus obligations**.
- **Patent evergreening avoided** – protects Indian pharma generics.

Sustainable Development

- First Indian FTA to include a **dedicated chapter on Trade and Sustainable Development (TSD)**.
- Emphasizes **environmental protection**, **labour standards**, and **green technology cooperation**.

Institutional Framework

- Regular **Joint Committee meetings**, sub-committees for implementation.
- **Review clause** ensures periodic evaluation.

Strategic Significance

- Diversifies India's trade away from overdependence on China/EU/US.
- Deepens ties with advanced European economies.
- Strengthens India's image as an **investment destination**.
- Prepares India for **larger trade pacts** like EU-India FTA and Indo-Pacific trade frameworks.

Trade Snapshot

Indicator	Value (approx.)
India-EFTA Trade (2023)	~$18 billion
India's exports	~$6 billion
India's imports	~$12 billion
Major Indian exports	Pharma, Gems, Textiles, Engineering goods
Major imports from EFTA	Machinery, Chemicals, Watches, Services

Challenges

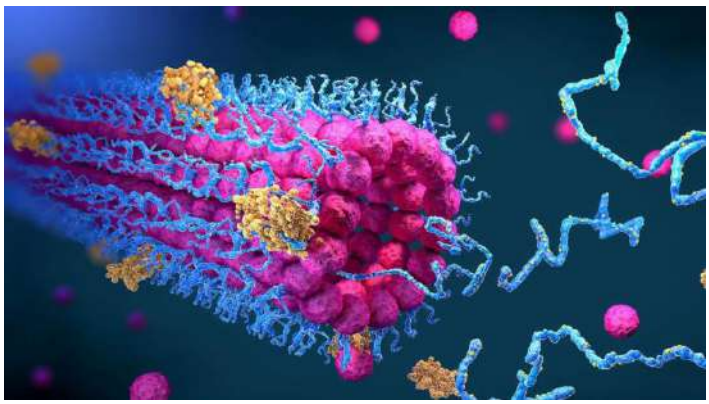
- **Trade imbalance**: India imports more than it exports.
- **High standards** and **non-tariff barriers** in EFTA may restrict Indian goods.
- **IPR Concerns**: Potential long-term pressures for TRIPS Plus changes.
- Need for **domestic regulatory and infrastructure reforms** to leverage investment.

BioEmu

Syllabus: GS-3; Science & Technology

Context

- Microsoft's new AI tool can enable large-scale drug discovery with fewer resource constraints



What is BioEmu

- BioEmu is a generative deep-learning system developed by Microsoft Research's AI for Science team in collaboration with Freie Universität Berlin and Rice University.
- It simulates the equilibrium behavior of proteins by generating thousands of statistically independent conformations per hour using a single GPU.

How It Works

- **Training Data**: BioEmu was trained on over 200 milliseconds of molecular dynamics simulation data, AlphaFold-predicted static structures, and extensive experimental protein stability datasets.
- **Open Access**: The full code and datasets have been made publicly available under the MIT license, including one of the largest protein molecular dynamics simulation datasets released.

Key Capabilities and Achievements

- **High Speed**: Capable of generating thousands of protein conformations within an hour using a single GPU, much faster than traditional molecular dynamics simulations.
- **High Accuracy**: Predicts thermodynamic stability with nearly 1 kilocalorie per mole accuracy, comparable to millisecond-scale simulations and experimental data.
- **Functional Insights**:
    - Identifies cryptic or hidden binding pockets
    - Captures domain movements and local unfolding
    - Models structural ensembles critical for protein function
- **Scalable Modeling**: Enables rapid modeling of protein behavior at the genomic scale, making it suitable for large datasets and broad research applications.

Limitations

- **Not Time-Based**: BioEmu does not model time-resolved dynamics. It produces equilibrium snapshots instead of continuous time-series simulations.
- **Context Boundaries**: Currently models only single-chain proteins under fixed conditions around 300 Kelvin. It does not account for membrane interactions, ligands, or environmental variations like pH or temperature.

Applications and Significance

- **Drug Discovery**: Helps identify hidden drug-binding sites and understand protein flexibility relevant to drug interactions.
- **Enzyme Engineering**: Assists in predicting how mutations affect stability or activity, supporting protein design and optimization.
- **Large-Scale Protein Analysis**: Offers a practical alternative to conventional simulations for high-throughput studies where time and resource constraints exist.