

Current Affairs - 22 October 2026

KEY FACTS ABOUT EMUDHRA LIMITED



- It is an **Indian digital trust company** that provides digital certificates and services for verifying identities and securing online transactions.
- It operates as a **certificate authority (CA)**, an organisation that **issues digital certificates to help websites and other entities prove their identity online.**
 - A **digital certificate** works much like an **identity card for a website.**
 - **When someone visits a banking website**, for example, the **browser checks its certificate to help establish** that it is connecting to the **genuine website** rather than an impostor.
 - CA's issue these certificates, which browsers use to determine whether a website's identity can be trusted.

eMudhra also provides **digital signature certificates** and **electronic signing services** that allow **people and businesses to sign documents online.**

- The company is **listed by the Controller of Certifying Authorities (CCA)**, the **government body** responsible for licensing and regulating certifying authorities in India.
- eMudhra is also **associated with Aadhaar-linked** electronic know-your-customer (**e-KYC**) services, according to the Unique Identification Authority of India (UIDAI).

eMudhra is **not the only company** authorised to **issue digital certificates in India.**

- The **CCA's list includes** other providers such as **Protean, C-DAC, Capricorn and VSign**
- Their **services vary**, but they operate within India's regulated digital-signature ecosystem.

Current Affairs - 22 October 2026

WHAT IS AGRIVOLTAICS?



- Agrivoltaics, also known as **Agri-Photovoltaics (AgriPV)**, **agrisolar**, or **dual-use solar**, is the practice of **utilizing the same land** for both **farming and solar power generation**.
- This combination helps address two pressing issues: **clean energy production** and **sustainable agriculture**.
- The idea of agrivoltaics has **been around since the 1980s**. After the turn of the millennium, the concept of agrivoltaics was put into practice and researched in **pilot plants, first in Japan, then in Germany and France**.
- However, it is only in recent years that the implementation of this concept of agrivoltaics has gained momentum.
- Agrivoltaics **designs vary** depending on crop type, geography, and climatic conditions:
 - **Elevated systems:** Solar panels are mounted several metres above the ground, allowing normal farming below.
 - **Row-based systems:** Panels are placed between crop rows to reduce shading impact.
 - **Vertical systems:** Upright panels capture sunlight from both sides, suitable for certain crops.
 - **Greenhouse-integrated systems:** Panels are incorporated into greenhouse structures to regulate light and temperature.
- Agrivoltaic systems can **create unique microenvironments** that benefit both energy generation and crop growth:
 - **Improved Water Efficiency:** The **shade from solar panels reduces evaporation, helping soil retain moisture** for longer periods. Studies indicate **water savings of up to 30%** in agrivoltaic setups.

Current Affairs - 22 October 2026

- **Temperature Regulation:** Partial shade from panels helps **maintain optimal temperatures** for certain crops, particularly during intense summer heat.
- **Enhanced Plant Growth:** Many crops, especially shade-tolerant varieties, show improved yields when grown under solar panels due to reduced heat stress and better water retention.
- **Agrivoltaics Status in India:**
 - Agrivoltaics in India is currently **at a nascent and pilot-based stage**, with nearly 50 installations across the country experimenting with different crop–panel combinations and assessing their economic viability.
 - The **MNRE estimates** that an extra **630 GWp of solar power** could be produced by putting solar panels on just **1% of India's agricultural land**.

SUVIKALP TOOL



- It is an **in-house Mine Repurposing Tool**.
- It is **developed** by the **Coal Controller Organisation (CCO)**, under the Ministry of Coal.
- It **assists stakeholders** in **selecting suitable mine repurposing projects** through a structured and data-driven decision-making process.
- The **tool evaluates and ranks repurposing projects** based on multiple technical, environmental, social and economic criteria.

Working:

- Once a suitable project is identified, users can explore implementation pathways through **PRISM (Post-Mining Repurposing Implementation Strategy Model)**.
- PRISM provides project concepts, implementation approaches, case studies, sample Detailed Project Reports (DPRs), tender documents and information on agencies working in similar sectors.

Current Affairs - 22 October 2026

Key Facts about Coal Controller Organisation:

- Coal Controller Organization (earlier Coal Commissioner), **established in 1916**, is one of the oldest offices in Indian Coal sector.
- It is a **subordinate office under Ministry of Coal**.
- It **collects and maintains coal production data** of all **private and public sector coal mines** in the country. The information is **collected on monthly basis**.
- **Key Functions of Coal Controller Organisation:**
 - It does **inspection of collieries** so as to ensure the correctness of the class, grade or size of coal.
 - It **issues directives** for the purpose of declaration and **maintenance of grades of coal** of a seam mined in a colliery.
 - It acts as **the appellate authority** in case of dispute between consumers and owner arising out of declaration of grade and size of coal.
 - It **regulates disposal of stock of coal** or the expected output of coal in the colliery.
 - It **grants opening / re-opening permission of coal mine**, seam or a section of seam or to sub-divide a mine.
 - Submission of monthly coal data to different ministries of Central and State Government, national and international organization.

LOW LEVEL LIGHT WEIGHT RADAR



- **Design:**
 - The radar's **four antenna panels** are mounted on **tripods** and are **passively cooled**.
 - This system does not require mechanical movement or liquid cooling.

- It is a **next-generation, multi-mission radar** designed to detect and track different types of aerial targets.

Current Affairs - 22 October 2026

- It features a **built-in self-test function** to help identify technical issues.
- It operates via a **control and display unit (CDU)** which allows operators to remotely control radar modes and view the air situation through a human-machine interface.
- **Features of Low Level Light Weight Radar**
 - **Coverage:** It uses four **fixed phased-array antenna panels** to provide complete **360-degree surveillance**.
 - **Technology:**
 - **Active Electronically Scanned Array (AESA) technology:** The system uses **Active Electronically Scanned Array (AESA) technology**, which allows it to electronically direct radar beams rather than physically move the antenna.
 - It also incorporates **Gallium Nitride (GaN) amplifiers** and **digital beamforming technology** to improve radar performance.
 - **Three-Dimensional Processing:** It uses **advanced three-dimensional processing capabilities** to distinguish targets from unwanted radar returns and reduce the effects of multipath interference.
 - It is crucial for detecting **small drones and other low-RCS** (low radar cross-section) targets.
 - **Tracking:**
 - It can **automatically track targets** while **continuing to scan the surrounding airspace** through its **Track While Scan** capability.
 - It can also **prioritise detected aerial targets**, allowing the Army to identify threats that require attention.
 - Its **monopulse tracking technique** provides accurate target tracking in elevation.
 - It has ability to provide target information to **weapon systems through wired or wireless communication links**.

Current Affairs - 22 October 2026

INDIA'S FOREIGN TECHNOLOGY DEPENDENCE: A STRATEGIC VULNERABILITY ASSESSMENT

Elon Musk's reported throttling of the military-grade Starshield network to Ukraine — in retaliation for Ukrainian strikes on Russian oil infrastructure — has renewed global scrutiny of dependence on foreign-controlled technology.

For India, which has thus far resisted Starlink's entry, the episode is a cautionary signal: across satellite communications, navigation, cloud computing, digital payments, and military equipment, India retains significant exposure to foreign-controlled systems, even where providers have acted lawfully so far.

- Exposure to foreign technology can manifest in three ways:
 - A foreign operator **directly restricting** an ongoing service (worst case).
 - Foreign-controlled platforms **disrupting access** to an otherwise Indian system.
 - A foreign supplier gradually **degrading India's ability** to sustain critical capabilities.

Satellite Navigation: India's Weakest Link

- India's NavIC constellation (its GPS equivalent) is underperforming. Only 3 satellites currently provide PNT (positioning, navigation, timing) signals — while at least 4 are needed for standalone positioning.
- The US discontinued deliberate GPS degradation in 2000, but retains the ability to deny PNT services militarily in specific regions.
- NavIC's shortfall stems partly from ISRO's persistent launch-rate difficulties.

Cloud Computing and IT Infrastructure

- AWS, Microsoft Azure, and Google Cloud dominate India's cloud ecosystem; Analysts forecast Indian cloud spending at \$17.5 billion in 2026.
- The government runs its own cloud — **MeghRaj**, via the National Informatics Centre (NIC) — hosting 2,170 ministries/departments (Dec 2025), though these **still rely on empanelled private providers**, including foreign ones.

Current Affairs - 22 October 2026

- **AWS-Yotta Partnership (Feb 2026):** Deploys AWS Outposts for MeghRaj 2.0, keeping data physically in India — but Outposts still require connection to an AWS regional control system, meaning foreign-controlled management persists.

Digital Payments: A Partial Success Story

- NPCI's UPI gives India considerable independence from Visa/Mastercard.
- However, the consumer-facing layer remains foreign-influenced (e.g., Google Pay) — though if Google Pay exited, users could simply switch to alternatives like PhonePe (majority-owned by Walmart, but infrastructure control stays domestic, unlike the Jio-SES case).
- **Residual Risk:** Banks operate within international correspondent networks — as seen when the EU disconnected select Russian banks from SWIFT (2022). India could face similar disruption via foreign sanctions, even without violating Indian law.

Military Equipment Dependence

- **Historical Precedent:** After the 1998 Operation Shakti nuclear tests, US sanctions blocked delivery of 30 LHTEC T800 helicopter engines to HAL, forcing India to source replacements from a French manufacturer.
- As per SIPRI (March 2026), India was the world's **second-largest arms importer**. Russia accounted for 40%, with growing purchases from France, Israel, and the US.
- Even the indigenous Tejas fighter depends on **US-made GE Aerospace engines**, with delivery delays already constraining production schedules.

Conclusion

India's technology landscape reveals a crucial distinction between ownership and control — Indian companies may hold majority stakes in satellite, cloud, or payment ventures, yet the underlying network management, software updates, and strategic levers often remain with foreign entities.

Domestic systems like UPI and MeghRaj do cut exposure. But ownership isn't control. Real strategic autonomy needs more. India must finish the NavIC constellation. It must speed up defence indigenisation. Relying on foreign goodwill and contracts isn't enough.

Current Affairs - 22 October 2026

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO):



INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

Founded
1944 • Chicago Convention

HQ
Montreal, Canada

Members: 193 States

BODIES

Assembly
meets every 3 years

Council
36 members
India re-elected to Part II

FUNCTIONS

- ✓ Aviation safety & security
- ✓ Environmental standards
- ✓ International aviation law
- ✓ Air transport liberalization

INDIA'S SIGNIFICANCE

Aviation hub • Policy influence • Growing market

- ICAO is a United Nations (UN) specialized agency, established in 1944 by the Convention on International Civil Aviation (1944), known as the **Chicago Convention**.

- It is dedicated to **developing safe and efficient international air transport** for peaceful purposes.

Member countries: It consists of **193 Member States**

Headquarters: Montreal, Canada.

Governance:

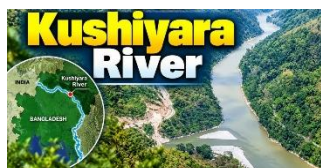
- ICAO Assembly:** It is convened **every three years**, is the organization's sovereign body, comprising all 193 signatory States to the Chicago Convention.
- ICAO Council:** It consists of **36-member**, elected by the 193 Member States during the Assembly, and serves as the **governing body** for a **three-year term**.

Functions:

- It **sets standards and regulations** necessary for **aviation safety, security** and **facilitation, efficiency, and economic development of air transport** as well as to improve the environmental performance of aviation.
- It also serves as a **clearinghouse for cooperation and discussion on civil aviation issues** among its 193 member states.
- It also **promotes regional and international agreements** aimed at liberalizing aviation markets.
- It helps to **establish legal standards** to ensure that the growth of aviation does not compromise safety and encourages the development of other aspects of international aviation law.

Current Affairs - 22 October 2026

KEY FACTS ABOUT KUSHIYARA RIVER



- It is a transboundary river between India and Bangladesh.
- It is a distributary of the Barak river.
- **Course:**
 - It originates at the India-Bangladesh border as a branch of the Barak River, known as the Amlshid bifurcation point.
 - Flowing westward, the River forms the boundary between Assam, India, and the Sylhet District of
 - Along its course, it passes through towns like Zakigonj, Sylhet, and Karimganj, Assam, before entering entirely into the Beanibazar Upazila of Bangladesh.
 - The river then meanders southwestward, passing several villages and eventually joining the Meghna River.

In 2022, India and Bangladesh signed the Kushiya River Water Agreement, which represents a critical turning point in their water-sharing relationship.

- This is the first water-sharing agreement between India and Bangladesh since the historic Ganga Water Treaty of 1996.
- The agreement aims to address the problems of seasonal water scarcity and flooding in both Assam, India, and Sylhet, Bangladesh.
- This allocation ensures adequate water for irrigation in Sylhet's dry-season (Boro) rice cultivation.
- The water of Kushiya will be channelled through the Rahimpur Canal project in Sylhet.
- Unlike the Teesta River dispute with West Bengal, the Kushiya agreement does not require state-level approval from Assam.