

NEWS TODAY

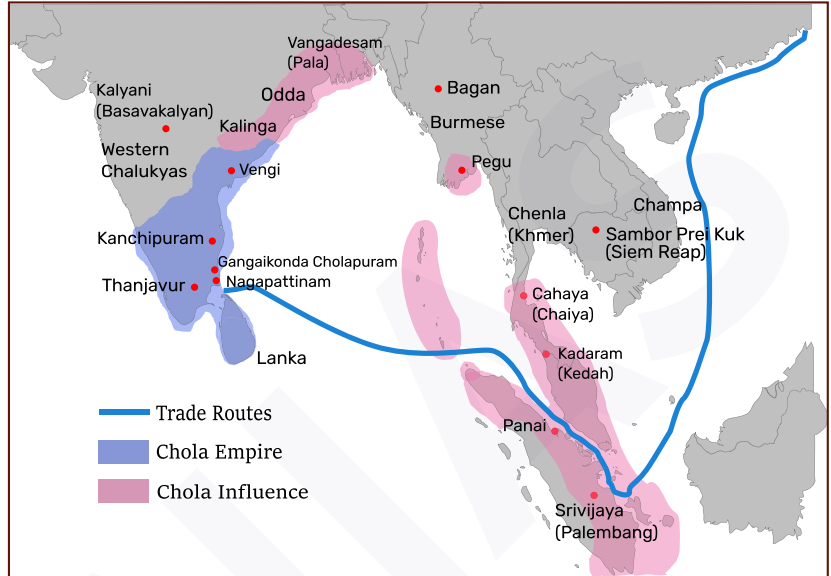
Andaman and Nicobar Island's capital Port Blair renamed as Sri Vijaya Puram

Sri Vijaya Puram represents the victory of Indian freedom movement and highlights the unique contribution of the A&N Islands.

- It is the site where Netaji Subhash Chandra Bose first unfurled the Tiranga and the Cellular Jail is also located here.
- Renaming also marks a departure from the colonial legacy, highlighting the contemporary strategic role of A&N Island which once served as naval base for the Chola Empire.

Naval power of Chola Empire

- Later Chola rulers Rajaraja (985-1014) and Rajendra I (1014-1044) played key role in developing a powerful navy.
 - Pursued aggressive military policy.
 - Access to the vast majority of peninsular India provided them with an unfettered access to the seas.
 - Bay of Bengal was transformed as 'Chola lake'.
- It enabled flourishing trade with the countries of Southeast Asia (under their Look East Policy).
 - key trading centres such as Nagapattinam were established.



Significant Naval Expeditions

- Rajaraja destructed the Chera navy at Kandalursalai, etc.
 - Also, he invaded Sri Lanka (annexing its northern part) and led a conquest to Maldives.
- Rajendra I's naval conquest of Sri Lanka resulted in the entire island becoming a Chola province.
 - He launched a major expedition against the Sailendra Empire (extending across Malay Peninsula and neighbouring islands), leading to the conquest of several regions in the Malay Peninsula and Sumatra.

Indian Institute of Science scientist reported breakthrough in neuromorphic computing

They developed Memristor semiconductor devices using metal-organic films instead of silicon-based technology.

- This material enables the Memristor to mimic the way the biological brain processes information using networks of neurons and synapses.

What is Neuromorphic computing?

- Neuromorphic computing, or neuromorphic engineering, mimics the human brain's structure and function.
- It involves designing hardware and software that simulate neural networks and synapses to process information.

How does neuromorphic computing work?

- It mimics biological brains using hardware like spiking neural networks (SNNs).
- SNNs consist of nodes (spiking neurons) connected by artificial synapses, which use analog circuitry to transfer signals.
 - This approach encodes data through discrete analog signal changes rather than binary systems used in standard computers (also known as von Neumann computers).

Benefits of neuromorphic computing

- Adaptability:** To new stimuli, excelling at solving novel problems in real-time.
- Event-driven computation:** Ensuring only active parts consume energy, resulting in efficient power usage.
- High performance:** As it integrates memory and processing in neurons, reducing latency.
- Parallel processing:** Of multiple tasks across different neurons for faster operation.

Challenges of neuromorphic computing: Lack of benchmarks and standards; Limited accessibility and software; Decreased accuracy, etc.

Processing of information by brain

- Neurons are the fundamental units of the brain and nervous system.
- As messengers, these neurons relay information between different areas of the brain and to other parts of the body.
- When a neuron becomes active or "spikes," it triggers the release of chemical and electrical signals.
 - These signals travel via a network of connection points called synapses, allowing neurons to communicate with each other.

Rules notified for Global Navigation Satellite System (GNSS)-based Electronic Toll Collection (ETC)

National Highways Fee (Determination of Rates and Collection) Amendment Rules, 2024 have been notified by the Ministry of Road Transport and Highways in accordance with the National Highways Act, 1956.

- It amended the National Highways Fee (Determination of Rates and Collection) Rules, 2008 to include provisions relating to GNSS-based ETC.
 - ⊕ Inclusion of GNSS On-Board Unit (OBU) along with Automatic Number Plate Recognition (ANPR) Device and FASTag as methods of tolling.
 - ⊕ Zero-user fee up to 20 kms of journey in each direction on National Highways once a day for mechanical vehicles (except National Permit vehicles).
 - ⊕ Exclusive lane for GNSS at Fee Plazas. Non-OBU Vehicles entering this lane shall pay a double fee.
- GNSS-based ETC is intended to eventually replace FASTag for toll collection on highways.

About GNSS-based ETC

- **Working:** Uses satellite-based imaging to track the position of the vehicle and collect tolls based on the distance travelled.
- **Main components:**
 - ⊕ OBU: GNSS-enabled device installed in a vehicle to determine vehicle route and calculate toll.
 - ⊕ ANPR cameras: Installed on the highways to recognize vehicle's number plate and deduct toll money.
- **Benefits:** Decrease the need for roadside tolling infrastructure; reduce congestion; etc.

Comparison between FASTags & GNSS-based ETC

Parameters	GNSS-based ETC	FASTags
Technology	Satellite-based imaging and ANPR	Radio Frequency Identification (RFID)
Equipment needed to be installed in Vehicles	OBU with GNSS connectivity	FASTag (RFID Tag) affixed on the windscreen
Calculation of Toll tax	Based on real-time vehicle movement data	Fixed rates

Need of developing and sustaining the Indigenous Electronic Warfare (EW) Systems highlighted

The Spectrum EW Conference with the theme, "EW: Trends, Technologies & Maintenance Challenges" highlighted EW as one of the main pillars of Air Strategy.

- Also, emphasised on developing Indigenous EW system with the participation of Indian academia, Defence Public Sector Undertakings and Indian Private Industries.

About Electronic Warfare (EW)

- **Definition:** A military action involving the use of electromagnetic energy to determine, exploit, reduce, or prevent the hostile use of electromagnetic spectrum signals (such as radio, infrared, or radar).
- **Three Major Areas:**
 - ⊕ **Electronic Support Measures (ESM or passive EW):** Intercepts and analyzes electromagnetic signals for threat recognition, intelligence gathering, and operational planning.
 - ⊕ **Electronic Counter- Measures (ECM or active EW):** Defends against jamming and deception using cyber and multispectral tools, and protecting friendly forces' communications.
 - ⊕ **Electronic Counter- Countermeasures (ECCM):** Employs electromagnetic signals or directed energy to disrupt and neutralize enemy electromagnetic capabilities.
- **Challenges faced by EW Systems:** Rapid technological changes require continuous updates in EW capabilities; cyber-attacks etc.

Need of EW for India

- To strengthen national defense by countering advanced threats in the electromagnetic spectrum from enemy countries.
 - ⊕ E.g., China's Y-9LG electronic warfare platform.
- **EW systems of India**
 - ⊕ **Shakti EW system:** Provide an electronic layer of defence against modern radars and anti-ship missiles.
 - ⊕ **Programme Sangraha:** Joint DRDO-Navy Programme for design and development of five different types of indigenous EW systems.
 - ⊕ **Integrated Electronic Warfare System (IEWS):** Designed for plains, semi-desert regions and mountainous terrain.
 - ⊕ **Other: Himshakti ((IEWS), Samyukta** (designed to perform multiple jamming), etc.

Conference on International Arbitration and Rule of Law in New Delhi

It is organized by the **Supreme Court (SC) & Permanent Court Of Arbitration (PCA)** in collaboration with the **United Nations Commission on International Trade Law (UNCITRAL)**.

- The event marked the **75th anniversary of the establishment of the SC** and the **125th anniversary of the PCA**.

Arbitration

- It is a form of **Alternative Dispute Resolution** (others being Mediation, Conciliations, Negotiations, etc.).
- In this, the dispute is submitted, by **agreement** of the parties, to **one or more arbitrators who make a binding decision on the dispute**.
- It is characterized by **neutrality, confidentiality, consensual with binding decisions**.

Existing Frameworks on Arbitration

Domestic

- ⊕ **Arbitration and Conciliation Act, 1996** as per UNCITRAL Model Law, applicable to all kinds of arbitrations including commercial disputes.
- ⊕ **New Delhi International Arbitration Centre Act, 2019**, for facilitating institutional arbitration
- ⊕ **Indian Council of Arbitration**, a society registered under the Societies Registration Act, 1860

Global

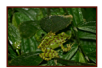
- ⊕ **International Court of Arbitration**, established in 1923 by the International Chamber of Commerce.
- ⊕ **PCA**, established by the **Convention for the Pacific Settlement of International Disputes**, in 1899 at Hague (India is a party).
- ⊕ **UNCITRAL Model Law** on International Commercial Mediation and International Settlement Agreements.

Rule of law

Refers to the **absolute supremacy** of the regular law as **opposed to the influence of arbitrary power** on the part of the government (A.V. Dicey)

Significance of law in fostering arbitration

- Provide **level Playing Field** promoting stability, fairness, predictability, etc.
- **Protection of Rights, Enforcing contracts** and amicable resolution of disputes.



Assam cascade frog (*Amolops formosus*)

Scientists from the Wildlife Institute of India studied **Assam cascade frogs** in two Himalayan streams of the Churdhar Wildlife Sanctuary in **Himachal Pradesh**.

- Study was conducted to find correlation of **different water parameters with the abundance and density of the population of a species**.

Assam cascade or hill stream frog.

- **Endemic to Himalayan regions** in India, Bangladesh, Bhutan, and Nepal.
- It is used as an **indicator species** to monitor **long-term conditions of hilly streams**.

Indicator Species:

- They reflect the **biotic or abiotic state of an environment**; reveal evidence of **environmental change**.
- Indicate the diversity of other **species, taxa, or entire communities within an area**.

Government issued guidelines for viability gap funding (VGF) scheme for offshore wind energy projects

Ministry of New and Renewable Energy (MNRE) notified guidelines are a step towards implementation of the **National Offshore Wind Energy Policy, 2015**.

About the VGF Scheme for Offshore Wind Energy Projects

- **Installation of 1000 MW Offshore Wind Energy Projects** off the coast of **Gujrat and Tamil Nadu** (500MW each). (Outlay: ₹ 6853 crore)
 - ⊕ The VGF will be provided till **FY 2031-32**.
- **Upgradation of two ports** to meet requisite **logistical requirements**. (Outlay: ₹ 600 crore)
- **Implementation:** by **MNRE** with **Solar Energy Corporation of India Limited (SECI)** as the **Implementing Agency**.
- **The National Institute of Wind Energy (NIWE)** will act as the **Nodal Agency**, providing **technical support** for installation and commissioning of projects.
- **Implementation methodology:** Competitive selection of bidder through **International competitive bidding** by SECI.
 - ⊕ Option for **Greenshoe option** which is an over-allotment option (50 MW in addition to 500 MW)

About Offshore Wind Energy

- **Potential in India:** long coastline of **7600 km** with large **Exclusive Economic Zones (EEZ)**.
- **Significance:** Important in achieving **Renewable energy target of 500 GW installed capacity by 2030**, addresses the **issue of land availability**, etc.
- **Challenges:** the cost per MW for **offshore turbines are higher** because of stronger structures and foundations needed, high corrosion, negative impact on marine biodiversity, etc.



Nidhi companies

Ministry of Corporate Affairs Cracks down on errant Nidhi companies.

About Nidhi company

- Nidhi Company is declared by the Central Government under **Companies Act, 2013**.
 - ⊕ It complies with the **Nidhi Rules, 2014** made by the Central Government for regulation of such class of companies.
 - ⊕ Rules have been amended subsequently in 2022, etc.
- The **objective** of Nidhi Companies is to cultivate the **habit of thrift and savings** amongst its members.
 - ⊕ It receives deposits from, and lends to, its members only, for their mutual benefit.
- ⊕ **Key Criteria:**
 - ◆ Not less than two hundred members.
 - ◆ Net Owned Funds of ten lakh rupees or more.



Cluster Munition (CM)

As per CM Monitor 2024, CM accounted for 93% of global casualties in 2023 with children constituting half of it.

Cluster Munition

- Weapons consisting of a **container or dispenser** from which many submunitions or bomblets are scattered over wide areas.
- Many submunitions are unreliable and can fail to explode, posing risks to **civilians during and after conflicts**.

Convention on Cluster Munitions (India not a party)

- It is an **International treaty** (enforced in **2010**) of more than 100 states prohibiting the use, production, transfer and stockpiling of CM.



Zorawar tanks

DRDO successfully conducts the **first phase of field firing trials** of 'Zorawar' tanks.

About Zorawar tanks

- It is a **light-tank** designed to provide the Indian army with **enhanced capabilities at high altitude**.
- Jointly developed by the **DRDO and private sector firm L&T**.
- Named after the legendary **General Zorawar Singh** who led multiple successful victories in Tibet.
- Key Features:**
 - It can be integrated with **drones and battle management systems** for enhanced situational awareness.
 - Designed for rapid deployment and maneuverability** in mountainous regions.
 - Tanks are amphibious**, making them versatile for operations in riverine regions.



Tardigrades

Recently, a **study of the first tardigrade fossil discovered** enabled them to classify them and **retrace their evolutionary history**.

About Tardigrades (Water Bears or Moss Piglets)

- They are **tiny eight-legged aquatic animals** found in almost all habitats on Earth.
- They comprise of two main classes: **Heterotardigrada** and **Eutardigrada**.
- They can **survive extreme environmental conditions** like punishing heat, freezing cold, ultraviolet radiation and even outer space.
 - They are able to survive harsh conditions, as they are capable of **almost stopping their metabolism (known as cryptobiosis)**, reviving only when conditions are better.



INDUS-X Initiative

Recently, the third edition of **India-US Defence Acceleration Ecosystem (INDUS-X) Summit** concluded in USA.

- Key highlights of the Summit:** Release of the **INDUS-X Impact Report** and launch of the official INDUS-X webpage.

About INDUS-X Initiative:

- Launched in **June, 2023** by the the **U.S. Department of Defense (DoD) and Indian Ministry of Defense (MoD)**.
- Objective:** **Expand the strategic technology partnership and defense industrial cooperation** between our governments, businesses, and academic institutions.
- Other key Features:
 - It acts as an **'Innovation Bridge'** connecting **defence startups** of India and the USA.
 - It is a part of the **U.S.-India initiative on Critical and Emerging Technology (iCET)**.
 - It is steered by **iDEX** on behalf of Ministry of Defence and DIU under the U.S. Department of Defense (DoD).



Co-location Facility

Securities and Exchange Board of India (SEBI) disposed of proceedings against the National Stock Exchange (NSE) in the alleged co-location case.

Co-location or Proximity Hosting

- Allows brokers to place their **servers on the premises of stock exchanges** (equipped with suitable infrastructure) for a fee.
- Due to their proximity with stock exchange servers, they provide **faster price feeds, quicker execution of trades** leading to significant profits.
- Guidelines for co-location** were released by SEBI in 2015. Further, measures to **strengthen the Algorithmic Trading and Co-location framework** were announced in 2018.



Quality Control Orders (QCO)

Government introduced stringent regulations under Quality Control Order (QCO) for enhancing fire safety in Furniture for non-domestic use.

About QCO

- The **Central Government, after consulting BIS**, publishes QCOs in exercise of the powers conferred under the **BIS Act, 2016** thereby bringing the products under **BIS Mandatory Certification**.
 - Products covered are based on **considerations like public interest, health and safety, unfair trade practices** etc.
- The products under QCOs shall **conform to corresponding Indian Standards** and shall bear the **Standard Mark** under a Licence or Certificate of Conformity (CoC) from BIS. E.g. IS 15768:2008 for textiles

Place in News



Nigeria (Capital: Abuja)

Torrential rains and collapse of Alau Dam led to flooding of Northeast Nigeria.

Political features

- Located on the west coast of Africa.
 - Nigeria** is most populous African Country.
- Territorial boundaries:** Niger (North), Chad and Cameroon (East), Benin (West)
- Maritime boundaries:** The Gulf of Guinea of the Atlantic Ocean in the South.

Geographical Features

- Major Relief:** Sokota Plains (northwest), Borno Plains (north east), etc.
- Highest point:** Chappal Waddi
- Major Rivers:** Sokoto and Niger (forming Niger delta draining into Gulf of Guinea), etc.
- Major Lake:** Chad (freshwater lake at the conjunction of Chad, Cameroon, Nigeria, and Niger)

