



DAILY CURRENT AFFAIRS 30-07-2025

GS-1

1. Cauvery River
2. Paithani Saree
3. Tsunami

GS-3

4. NISAR Satellite
5. International Tiger Day 2025

Cauvery River

Syllabus: GS-1; Geography-Rivers

Context

- With more than 86,000 cusec of water being released from KRS dam into Cauvery river, there is a flood like situation in Srirangapatna taluk, and several roads connecting the river have been closed to the public.

About

- **Origin:** Tala Cauvery, Brahmagiri Hills, **Kodagu (Coorg) district**, Karnataka
- **Elevation at Source:** ~1,341 meters
- **Length:** ~800 km
- **Drainage Area:** ~81,155 sq km
- **States Covered:** **Karnataka, Tamil Nadu, Kerala** (small part), **Puducherry (Karaikal)**

Course of the River

1. In Karnataka:

- Flows southeast from Coorg
- Major cities: Kushalnagar, Srirangapatna, Mandya
- **Falls:** *Shivanasamudra Falls* (Hydroelectricity)
- Receives **Hemavati, Shimsha, Arkavathi**

2. Enters Tamil Nadu:

- Passes through Erode, Tiruchirappalli, Thanjavur
- Known for forming **delta** in Thanjavur District
- **Delta region:** Fertile "Rice Bowl of Tamil Nadu"
- Discharges into **Bay of Bengal** at **Poompuhar**

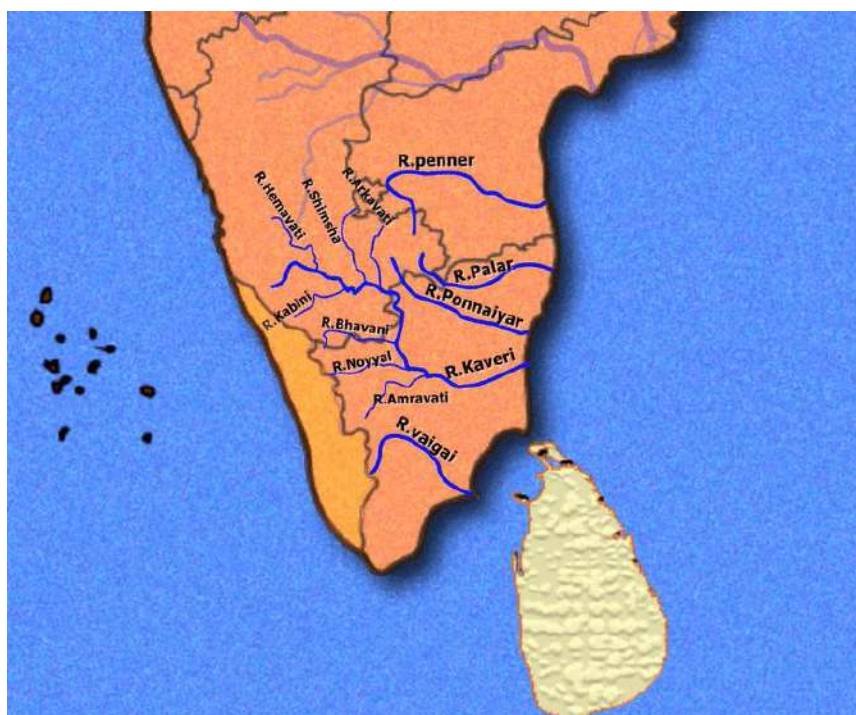
Major Tributaries

Left Bank:

- **Harangi**
- **Hemavati**
- **Shimsha**
- **Arkavathi**

Right Bank:

- Lakshmana Tirtha
- Kabini
- Bhavani
- Noyyal
- Amaravati



Hydropower Projects & Dams

Name	Location	Purpose
Krishna Raja Sagara (KRS)	Karnataka	Irrigation, Hydropower
Mettur Dam	Tamil Nadu	Agriculture, Storage
Shivanasamudra	Karnataka	First hydroelectric plant in Asia

Irrigation & Agriculture

- Vital for **paddy, sugarcane**, and **banana** cultivation
- Supports **deltaic agriculture** in Tamil Nadu
- Key to **Drip and Canal irrigation** in Southern India

Inter-State River Water Dispute

Kaveri Water Dispute

- Between **Karnataka, Tamil Nadu, Kerala, Puducherry**
- **Main Issue:** Sharing of water during lean seasons
- **Cauvery Water Disputes Tribunal (CWDT):** Constituted in **1990**
- **Final Award (2007):**
 - Tamil Nadu: **419 TMC**
 - Karnataka: **270 TMC**
 - Kerala: **30 TMC**
 - Puducherry: **7 TMC**
- **Supreme Court Verdict (2018):**
 - Karnataka: **284.75 TMC**
 - Tamil Nadu: **404.25 TMC**
- **Cauvery Water Management Authority (CWMA):** Set up in 2018

Ecological Significance

- Home to **Riverine Ecosystems** and **Riparian Forests**
- Supports **migratory birds, Mahseer fish, and endemic flora**
- **Threats:**
 - Sand mining
 - Pollution (industrial & domestic)
 - Urban encroachment

Cultural & Religious Significance

- Considered **sacred** in South India
- **Kaveri Pushkaram:** Celebrated once in 12 years
- Temples: **Sri Ranganathaswamy (Srirangam), Talakaveri Temple**

Paithani Saree

Syllabus: GS-1; Art & Culture

Context

- **Prime Minister of India** recently praised the **traditional craftsmanship of Paithani Sarees** in his monthly **Mann Ki Baat** radio programme, bringing national attention to this celebrated textile tradition.



About Paithani Sarees:

- Known as the “**Mahavastra of Maharashtra**” (great garment of the state).
- A hallmark of **Maharashtrian heritage and royal bridal attire**.
- Woven using **pure silk and gold zari**, representing **luxury and tradition**.
- Originates from the **medieval town of Paithan**, located on the **banks of River Godavari** in Maharashtra.

Key Features:

- **Handwoven in pure silk** with traditional dyeing techniques.
- The **border (kath)** and **pallu (padar)** are rich with unique, intricate **motifs**.
- **Common motifs:**
 - **Parrots (Tota)**
 - **Peacocks (Mayur)**
 - **Lotus flowers (Kamala)**
- Available in **6-yard and 9-yard variants**.

- Favored by **Maharashtrian brides** for centuries due to its cultural significance.

Geographical Indication (GI) Tag:

- Received **GI status in 2010**.
- Recognized for its **distinct regional identity and artisanal value**.

Cultural & Economic Significance:

- Among the **most exquisite and expensive sarees** in India.
- Represents **skilled craftsmanship, heritage preservation, and traditional livelihood**.
- Contributes to the **handloom and cottage textile industry** of Maharashtra.

Tsunami

Syllabus: GS-1; Geography

Context

- One of the world's strongest earthquakes struck Russia's Far East early on July 30, 2025, an 8.8-magnitude trembler that caused a tsunami in the northern Pacific region and prompted warnings for Alaska, Hawaii and other coasts south toward New Zealand.

Definition

- A **tsunami** is a series of ocean waves caused by large and sudden displacements of the sea surface, most commonly due to **undersea earthquakes**, but also volcanic eruptions, landslides, or meteorite impacts.

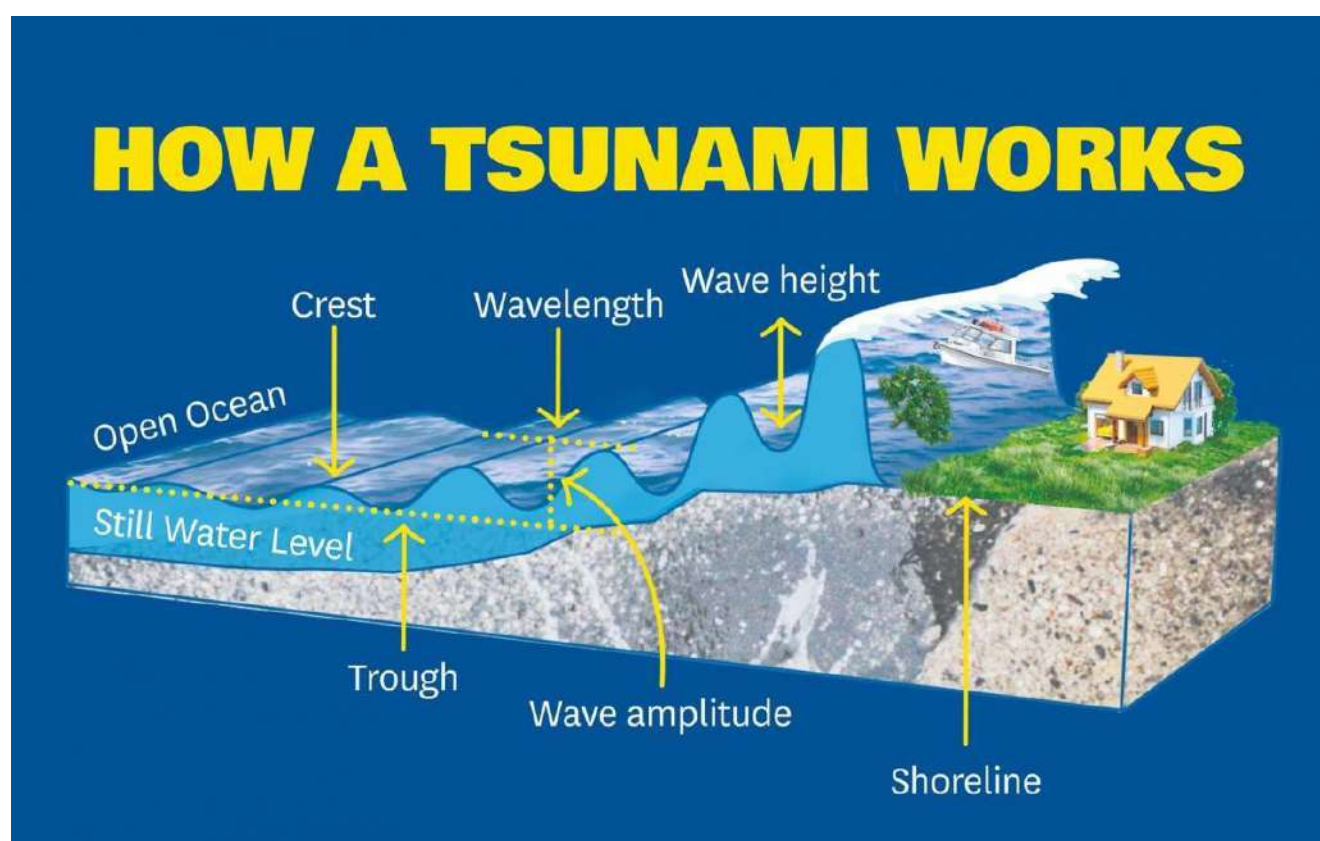
Causes of Tsunami

Cause	Explanation
Undersea Earthquakes	Most common cause (>90%). Tectonic plate movement along subduction zones displaces water.
Volcanic Eruptions	Submarine volcanoes or collapse of volcanic islands cause water displacement.
Landslides	Coastal or undersea landslides (due to earthquakes or erosion)

Cause	Explanation
	displace water.
Meteorite Impacts	Rare, but can displace large volumes of water if they strike the ocean.

Tsunami vs Tidal Wave

Feature	Tsunami	Tidal Wave
Cause	Seismic/volcanic activity	Gravitational pull of moon
Frequency	Rare	Daily (high/low tide)
Misnomer	Sometimes wrongly called tidal wave	Actually unrelated



Characteristics of a Tsunami

- **Wave Speed:** 500–900 km/h in deep ocean (like a jet plane)
- **Wave Height:** Small in deep sea (often <1m), but increases drastically near the shore
- **Wavelength:** Can be >100 km

- **Arrival Time:** Minutes to hours after the triggering event
- **Multiple Waves:** Occur in series, intervals of 5–60 minutes

Major Tsunami-Prone Regions

- **Pacific Ring of Fire** – Most active seismic region
- **Indian Ocean Region** – Less frequent but devastating (e.g., 2004)
- **Mediterranean Sea**
- **Coastal Japan, Indonesia, Philippines, Chile, Alaska**

Tsunami in India

- **2004 Indian Ocean Tsunami:**
 - **Date:** December 26, 2004
 - **Magnitude:** 9.1–9.3 (Sumatra earthquake)
 - **Casualties:** >2.3 lakh people killed globally; ~10,000 in India
 - **Worst-hit Indian regions:** Andaman & Nicobar Islands, Tamil Nadu, Andhra Pradesh, Kerala
 - **Tsunami reached India within 2 hours** after earthquake

Tsunami Warning System in India

- **Indian Tsunami Early Warning Centre (ITEWC):**
 - Located in **Hyderabad**, under **INCOIS** (Indian National Centre for Ocean Information Services)
 - Established post-2004 tsunami
 - Provides **real-time monitoring, alerts & advisories**
 - Works in collaboration with **UNESCO-IOC's Pacific Tsunami Warning System**

Tsunami Mitigation Measures

1. **Early Warning Systems:** Seismic monitoring, sea-level sensors
2. **Community Awareness:** Education, drills, and evacuation training
3. **Coastal Zone Regulation:** Avoid construction in hazard-prone areas
4. **Disaster Management Authorities:** NDMA, SDMA roles in mitigation
5. **Natural Barriers:** Mangroves, sand dunes, coral reefs help buffer wave impact

Tsunami – Key Institutions & Frameworks

- **INCOIS** (Indian National Centre for Ocean Information Services)
- **NDMA Guidelines on Tsunamis (2007)**
- **UNESCO-IOC Tsunami Programme**
- **Sendai Framework for Disaster Risk Reduction (2015–2030)** – includes tsunamis

NISAR Satellite

Syllabus: GS-3: Science and Technology – Satellites.

Context:

- India is all set to launch NISAR, an earth observation satellite jointly developed by the Indian and US space agencies on 30th July 2025.

NISAR Satellite – A Landmark NASA-ISRO Collaboration

Introduction

- **Full form:** NASA-ISRO Synthetic Aperture Radar (NISAR).
- **Nature:** First dual-frequency Earth observation radar satellite.
- **Cost:** ₹12,000 crore (~\$1.5 billion).
- **Launch Vehicle:** GSLV Mk-II.
- **Launch Site:** Sriharikota, India.
- **Orbit:** Sun-synchronous polar orbit at 747 km altitude.
- **Significance:** One of the world's most advanced Earth observation missions.

Key Features

Dual-Frequency Synthetic Aperture Radar (SAR)

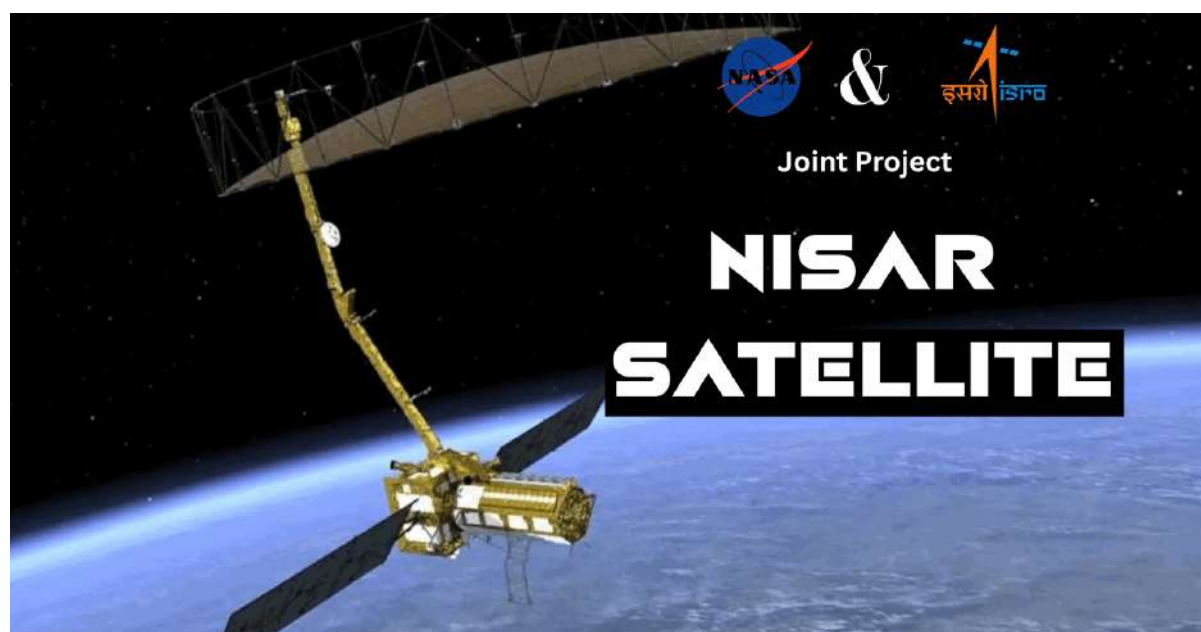
- **L-band Radar (1.257 GHz)** – by NASA:
 - Penetrates forests, soil, ice.
 - Detects ground deformation & subsurface movement.
- **S-band Radar (3.2 GHz)** – by ISRO:
 - Captures surface-level changes.
 - Suitable for crop monitoring, biomass, and water levels.

Imaging Capabilities

- **Swath Width:** 240 km.
- **Spatial Resolution:** 3–10 metres.
- **Revisit Time:** Every 12 days.
- **Accuracy:** Vertical displacement mapping down to centimetres.

Technological Innovations

- **12-metre mesh antenna** with 9-metre deployable boom.
- **Synthetic Aperture:** Mimics large radar aperture through processing.
- **SweepSAR Mode:** Allows wide coverage without resolution loss.



Scientific and Societal Applications

Global Utility (6 Themes)

- **Solid Earth** – Earthquakes, landslides, tectonic movements.
- **Ecosystems** – Forest cover, woody biomass, biodiversity.
- **Cryosphere** – Glacial flow, polar ice dynamics.
- **Coasts & Oceans** – Erosion, oil spills, cyclones.
- **Disaster Management** – Real-time damage proxy maps within 5 hours.
- **Agriculture & Infrastructure** – Crop yield, dam subsidence.

India-Specific Enhancements

- **Exclusive S-band Operation Over India:**
 - Soil moisture & biomass mapping.
 - Enhanced agricultural yield prediction.
 - Improved disaster warning and recovery.
- **National Focus Areas:**
 - Precision farming.
 - Forest conservation.
 - Rural development.
 - Infrastructure risk assessment.

Data Access & Infrastructure

- **Open Data Policy:** Freely available within hours of acquisition.
- **NASA:**
 - Near Earth Network (Alaska, Norway, Chile) handles global data.
- **ISRO:**
 - Shadnagar & Antarctica ground stations for Indian region.
 - NRSC processes & distributes data in India.
- **Capacity:** Up to 3 TB/day data downlink globally.

India-U.S. Collaboration

ISRO Contributions	NASA Contributions
Spacecraft bus	L-band radar system
S-band radar	Radar structure and deployable antenna
Ka-band telemetry systems	Onboard electronics and high-speed storage
Launch (GSLV Mk-II)	Global ground support infrastructure

- **Integration & Testing:** Conducted in Bengaluru.
- **Significance:** Symbolises technological co-development and strategic space partnership.

Strategic Relevance

- Enhances India's role in global climate science and disaster response.
- Strengthens Indo-U.S. space cooperation.
- Promotes self-reliant space infrastructure and data democratization.

Practice Question:

Q. Discuss the significance of the NISAR satellite in strengthening Indo-U.S. space collaboration and enhancing global and national capabilities in Earth observation and disaster management. (15 marks, 250 words)

International Tiger Day 2025

Syllabus: GS-3: Wildlife Conservation

Context:

International Tiger Day 2025: Home To 3,682 Tigers, India Now Global Leader In Tiger Conservation.

- Celebrated annually on **29th July** to raise awareness about tiger conservation.
- 2025 focus: Highlights **Amur tiger (Panthera tigris altaica)** – the **largest wild cat species**.

History of International Tiger Day

- Established at the **2010 Saint Petersburg Tiger Summit**, Russia.
- Participated by **13 tiger range countries** (India, Bhutan, Nepal, Bangladesh, Malaysia, etc.).
- **Tx2 Goal: To double wild tiger population by 2022** (from 2010 levels).

INDIA'S ROLE IN TIGER CONSERVATION

Background

- Tiger population in India:
 - ~1,00,000 in early 1900s.
 - Dropped to **1,827 by 1972**.

- **1973: Launch of Project Tiger.**



Project

Tiger

- **Launched:** 1973.
- **Administered by:** National Tiger Conservation Authority (NTCA) under Wildlife Protection Act, 1972.
- **Funding:** Centrally Sponsored Scheme.
 - **60% Central assistance** for non-recurring.
 - **50% for recurring**, rest borne by states.

Objectives

- Ensure **viable population** of Bengal tigers in their natural habitats.
- Conserve **prey base** and habitat.

Core-Buffer Strategy

- **Core area:** Strictly protected, no human activity.
- **Buffer area:** Sustainable human-wildlife coexistence allowed.

Achievements

- **Initial Reserves (1973):** 9.
- **Current Reserves (2024):** Over **50 tiger reserves** across **18 states** (covering **2.2% of India's land area**).
- **Tiger Count (2022 Census):**
 - Estimated Average: **3,682**.

- Upper Limit: **3,925**.
- **Growth Rate:** ~6.1% annually in last two decades.
- **India hosts ~75% of the world's tiger population.**

Top Tiger States

- 1st – Madhya Pradesh.
- 2nd – Karnataka.
- 3rd – Uttarakhand.
- 4th – Maharashtra.

Top Tiger Reserves

- **Jim Corbett** (Uttarakhand) – Highest count.
- **Bandipur&Nagarhole** (Karnataka).
- **Bandhavgarh** (Madhya Pradesh).

Largest Tiger Reserve

- **Nagarjunsagar-Srisailem** (Andhra Pradesh).

Recent Development

- **Project Tiger** and **Project Elephant** merged (FY 2023–24).
- New name: **Project Tiger & Elephant** – ensures holistic ecosystem approach.

Iconic Figures

- **Machhli (T-16)** – Famed tigress from Ranthambore; symbol of Project Tiger.
- **Kailash Sankhala** – Known as the **Tiger Man of India**, 1st Director of Project Tiger.

Cultural Significance

- Royal Bengal Tiger – National Animal of India.
- Symbol in **mythology, culture, and environmental pride** (e.g., Bon Bibi in Sundarbans).

Amur Tiger (*Panthera tigris altaica*)

- **Largest tiger subspecies**, also known as the **Siberian tiger**.
- Native to **Russian Far East**.
- Adaptations: Thick fur, body fat for sub-zero temperatures.
- Threats: **Poaching, habitat loss**.
- Revered by **indigenous groups** like **Udeghe, Nanai, Oroch** as **forest guardian**.