

CURRENT PULSE



MONTHLY MAGAZINE

JUNE 01/2026 TO JUNE 30/2026

Right To Be Forgotten

Delhi High court in 'Laksh Vir Singh Yadav V. Union Of India & Ors' recognized an individual's 'Right To Be Forgotten' as an integral facet of the fundamental right to privacy under Article 21.



- **Right to be forgotten:** Right to seek removal or restricted access to personal information from public accessibility that no longer serves legitimate purpose.

Key Highlights of Judgement

- Sets out detailed principles for when **names can be de-indexed or masked in court records**.
 - **De-indexing** (to be operated globally): Removes a person's **name as a searchable key** without deleting the record, limiting access through name-based searches.
 - **Application:** Cases ending in acquittal, discharge, etc.
 - **Exceptions:** It can't be applied in **cases against women, children or breach of public trust**.
 - **Masking:** Replaces names and personal identifiers in judicial records with neutral labels (e.g. XYZ).

Cotton

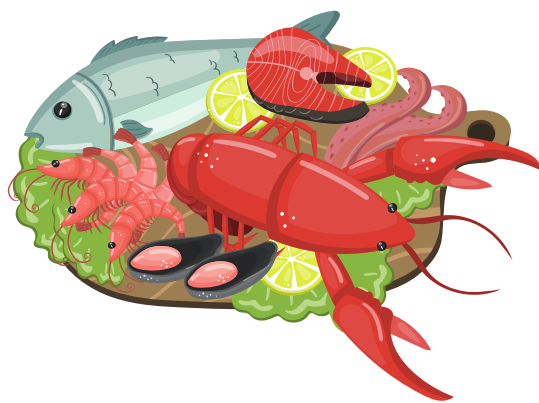
Centre has temporarily exempted customs duty on cotton imports from 1 June–31 October 2026 to improve availability for the textile sector.



Cotton

- It is also termed as “**White-Gold**”.
- A soft, fluffy natural fibre grown around seeds in a boll; a shrub (**semi-xerophytic**) crop of **tropical and subtropical regions**.
- In India it is grown in the kharif season **in semi-arid regions of India**.
- **Temperature:** Minimum 15°C for germination; 21–27°C optimal for growth.
 - It can tolerate temperature to 43°C but temperature below 21°C is detrimental to the crop.
- **Soil:** Well-drained alluvial, black, and red soils; sensitive to waterlogging.
- **Species of cotton:** There are **four cultivated species of cotton** and India is the **only country cultivating all four cotton species** on commercial scale.
- India has the **largest area under cotton cultivation** and **second largest producer** of cotton after China.

India's Seafood Exports



India's Seafood Exports Reach Record High in FY 2025–26 Spanning a wide and diversified basket, the sector is a major contributor to food security, employment, export earnings and sustainable livelihoods.

Key Highlights

- **All Time High Exports (Both Volume and Value):** India exported 19,72,018 metric tonnes (MT) of seafood valued at USD 8.46 billion during FY 2025–26.
- **Leading Export Item:** Frozen shrimp remained leading export item accounting for 40.19% of total export quantity and 66.52% of total export earnings in US dollar terms.
 - It was followed by Frozen fish and Dried Seafood.
- **Top Export Destinations:** United States and China.

Key Policy Recommendations to enhance Sector Competitiveness

- **Central Scheme for Development of Indigenous Broodstock:** To reduce reliance on expensive and pathogen-prone imported broodstock.
- **Central Scheme for Meeting Global Quality Standards for Seafood Products:** To ensure that Indian seafood meets global quality standards.
- **Ease of Export:** Managing country-specific export bans and mitigating freight costs.
- **Umbrella Body for Sector:** E.g. Seafood Sector Governing Council (SSGC) for collaboration, infrastructure support and development, etc.

Key Measures taken

- **Marine Products Export Development Authority (MPEDA):** Dedicated agency to facilitate seafood export under Ministry of Commerce and Industry.
- **Flagship Scheme:** Pradhan Mantri Matsya Sampada Yojana (PMMSY); Fisheries and Aquaculture Infrastructure Development Fund (FIDF), etc.
- **Others:** Enhanced duty-free import limit of specified inputs used in seafood processing; SHAPHARI certification, etc.

Key Challenges Persisting in India's Seafood Sector	
Challenge Area	Description / Impact
 Stringent Non-Tariff Regulations	▶ Strict sanitary, phytosanitary, and quality-control requirements in international markets often hinder seafood exports. Several consignments have been declined due to non-compliance with residue standards.
 Protective Trade Measures	▶ Importing countries may impose Anti-Dumping Duties (ADD) and Countervailing Duties (CVD), increasing costs and reducing the market competitiveness of Indian seafood products.
 Supply-Side Difficulties for Exporters	▶ Seafood exporters frequently encounter challenges in securing consistent raw material supplies because of seasonal fluctuations, uneven availability, and quality inconsistencies.
 Weak Cold Chain Network	▶ Effective seafood preservation depends on reliable temperature-controlled storage and transport systems. Even slight disruptions can affect product quality, freshness, texture, and storage life.

Shangri-La Dialogue

India has signed a deal with Vietnam for supply of BrahMos at the Shangri-La Dialogue in Singapore.



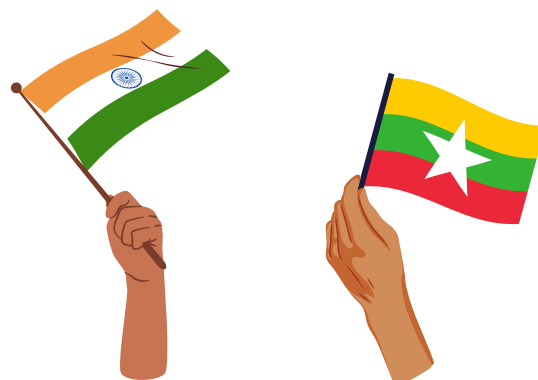
- BrahMos is a supersonic “Fire and Forget” cruise missile with Mach 2.8 speed, stealth capability and a 290 km range.

About Shangri-La Dialogue

- It is recognised as Asia's premier defence summit, held annually in Singapore and organised by International Institute for Strategic Studies (IISS).
- It brings together global defence leaders to discuss major security challenges.
- It serves as a platform for strategic debates, bilateral talks and defence cooperation.

India-Myanmar Relations

The Prime Minister of India and the President of Myanmar reviewed bilateral, regional and global issues of mutual interest including AI and Space.



- Both nations also welcomed the steady growth of the Rupee-Kyat settlement mechanism (operationalized in 2024) to facilitate easier bilateral trade.

Significance of India-Myanmar Relations:

- **Geo-strategic:** Myanmar lies at the confluence of India's Neighbourhood First, Act East and MAHASAGAR policies.
- **Connectivity:** India-Myanmar-Thailand Trilateral Highway and the Kaladan Multi-Modal Project to boost regional economic integration.
- **Security:** to manage ethnic cross-border insurgencies (along 1,643 km long border), check arms and narcotics smuggling (Golden Triangle) into northeastern states.
- **Cultural Soft Power:** Deep-rooted historical ties built around shared Theravada Buddhist heritage.

India–Oman CEPA



India–Oman CEPA recently entered into force.

About India- Oman CEPA

- **Oman's offer:** 99.38% of India's exports (by value) will receive immediate zero-duty access to Oman.
 - 100% FDI for Indian companies in major services sector in Oman.
- **India's offer:** Tariff liberalisation on 77.79% of tariff lines covering 94.81% of imports from Oman, while protecting sensitive sectors like dairy, oilseeds and cereals.

About India-Oman Trade Relations

- Oman is India's second-largest trading partner in Gulf with ~\$11 bn bilateral trade.
- Oman's logistics hubs at **Sohar, Duqm and Salalah** provide access to India to wider Gulf Cooperation Council and East African markets.

India-Middle East-Europe Economic Corridor

**Future of India-Middle East-Europe Economic Corridor (IMEC) amid the Middle Eastern War
The Iran conflict strengthens the case for the IMEC while simultaneously complicating its execution.**

About India-Middle East-Europe Economic Corridor (IMEC)

- **IMEC is a multi-modal connectivity project** aimed at developing infrastructure of ports, railways, roads, sea lines and pipelines to enhance trade **between India, the Arabian Peninsula, the Mediterranean region and Europe.**
- **Announcement:** During the G20 Summit 2023, held under the presidency of India.
- **Signatories:** India, the United States, Saudi Arabia, the United Arab Emirates, France, Germany, Italy, and the European Union.
- **Two Key Corridors:**
 - The **East Corridor** connects India to the Arabian Gulf (linking South Asia and the Middle East).
 - The **North Corridor** extends from the Gulf to European markets.
- **Significance for India:** Estimated to **reduce transportation time by 40% and logistics costs by 30%**, providing an **alternative to congested routes (such as the Suez Canal).**

Current Vulnerabilities in IMEC:

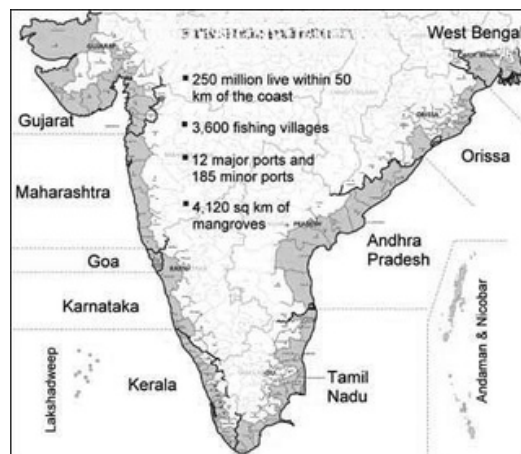
- **Escalation of Iran- Israel War:** have intensified into a broader regional war, threatening IMEC's proposed transport corridors.
- **Trade Route Disruption: Strategic chokepoints (Strait of Hormuz)** have triggered spikes in oil prices and shipping risks, **undermining IMEC's economic feasibility.**
- **Breakdown of Regional Cooperation:** Strained critical diplomatic ties between Israel and Arab nations, stalling coordinated infrastructure development.
- **Execution Challenges:** Diverse stakeholder interests (between UAE and Saudi Arabia) further complicate the funding and timely execution of IMEC projects.

Way Forward

- **Strengthen West Asian Diplomacy:** Promote regional dialogue and cooperation to ensure the stability required for smooth project execution.
- **Phased Development:** Prioritize key infrastructure segments first to build momentum and show early results.
- **Deepen Partnerships:** Enhance economic and trade ties with key partners like the European Union and Gulf nations.

Climate Change Impact on India's Coastal Region

Azim Premji University's recent study warns of severe, hyper-local climate shifts across India's 11,000-km coastline.



Key Highlights

- **Coastal Erosion:** A 15 cm sea-level rise by 2050 will rapidly accelerate shoreline loss.
- **Cyclones:** Rapid ocean warming ($0.27^{\circ}\text{C}/\text{decade}$) is fueling more intense tropical storms.
- **Temperature Anomalies:** Around 40 districts will see summer peaks spike by $>1^{\circ}\text{C}$, approaching unsafe humidity-heat thresholds.
- **Polarized Rainfall Pattern:** While average precipitation will increase, the growth is concentrated on the western Coast.
- **Salinity:** Cyclone-driven storm surges are forcing seawater into fresh groundwater (e.g., **Sundarbans**), ruining drinking supply.

Ground-Level Ozone (O_3)

A recent analysis highlighted that ground-level ozone is emerging as a major air pollution challenge in Delhi.



About Ground-Level Ozone (O_3)

- It is a **secondary air pollutant (found in the troposphere)** formed by reactions between **Nitrogen Oxides (NO_x)** and **Volatile Organic Compounds (VOCs)** in the presence of sunlight.
 - **Formation:** $\text{NO}_x + \text{VOCs} + \text{Sunlight} \rightarrow \text{Ozone } (\text{O}_3)$
- **Major sources:** vehicles, industries and thermal power plants.
- Peaks **during summer** due to intense solar radiation.
- **Impact:** respiratory ailments, crop damage and photochemical smog.
- Unlike **stratospheric ozone** ("Good Ozone"), which shields Earth from UV rays, ground-level ozone is a **harmful pollutant** ("Bad Ozone").
- **Safe Limit:** $100 \mu\text{g}/\text{m}^3$ for 8-hourly monitored value and $180 \mu\text{g}/\text{m}^3$ for 1-hourly monitored value, both under WHO Standards as well as National Ambient Air Quality Standard (NAAQS), 2009.

Majuli Island

Recently a study reconstructed 4,000 years of climate history of Majuli Island using sediments from Sakali Wetland.



About Majuli Island

- World's largest river island located in Assam.
- It became India's first river island district in 2016.
- Bounded by Subansiri and its tributaries Ranganadi, Dikrong, Dubla, Chici and Tuni etc. on North west;
 - Kherkatia Suli (spill channel of Brahmaputra) in northeast and Brahmaputra on South and South west.
- **Key Features:** Region of fluvial geomorphology; formation of islets locally called Chaporis, hub of Assamese neo-Vaishnavite culture (known for tradition of Satras), etc.
- Included in Tentative List of UNESCO World Heritage Sites in 2004.

Illegal Sand Mining

Illegal Sand Mining in National Chambal Sanctuary SC took suo motu cognizance and severely reprimanded states of Rajasthan, Madhya Pradesh, and Uttar Pradesh over persistent illegal sand mining in and around National Chambal Gharial Sanctuary.



About Illegal Sand Mining

- **Legal Status:** Sand is classified as a **minor mineral** under Mines and Minerals (Development and Regulation) (MMDR) Act, 1957.
- **Definition:** Under **Minerals Concession Rules, 2016**, **illegal mining** means reconnaissance, prospecting, or mining without the required mineral concession.
 - As per **MMDR Act**, extraction or transportation of minerals without a valid prospecting licence, mining lease, composite licence, or in violation of rules under **Section 23C (rules made by state governments)** constitutes illegal mining.
- **Implications:** Causes ecological degradation, biodiversity loss, law-and-order challenges due to mining mafias, and socio-economic costs including revenue loss etc.

Protection Against Illegal Sand Mining

- **Guidelines:** MoEFCC's **Sustainable Sand Mining Management Guidelines (2016)** and **Enforcement & Monitoring Guidelines (2020)**.
- **Technology-Based Monitoring:** The **Mining Surveillance System (MSS)** uses satellite imagery.
- **Mineral Conservation and Development Rules, 2017:** It mandates end-to-end mineral accounting.
- **Penalties:** The **MMDR Amendment Act, 2015** provides for higher fines, imprisonment up to 5 years, and special courts for speedy trials.

National Chambal Gharial Sanctuary

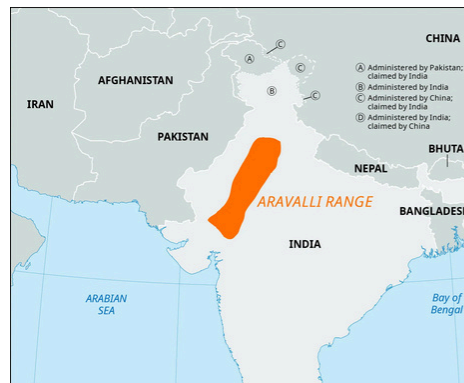
- It is a protected area **established in 1979**.
- **Location:** Located on the Chambal River near the tri-point of Rajasthan, Madhya Pradesh and Uttar Pradesh.
- **Other species:** Red-Crowned Roofed Turtle, Ganges river dolphin etc

About Gharial (*Gavialis gangeticus*)

- **Range:** In **tributaries of Ganga River** – Chambal and Girwa Rivers in India and Rapti-Naryani River in Nepal.
- **Conservation status:** IUCN (Critically Endangered); WPA (Schedule I and IV); CITES (Appendix I).

Importance of the Aravalli

Recently, massive dust storms in parts of Rajasthan highlighted the ecological importance of the Aravalli Range.








- This storm has been caused by Western Disturbances that brought high-speed winds and upward surge of hot air due to heating in Western Rajasthan.
- The Aravallis act as a **natural barrier between the Thar Desert and the Indo-Gangetic plains** whose degradation has increased intensity of such storms in Delhi and northern plains in the past.

Importance of the Aravalli Range

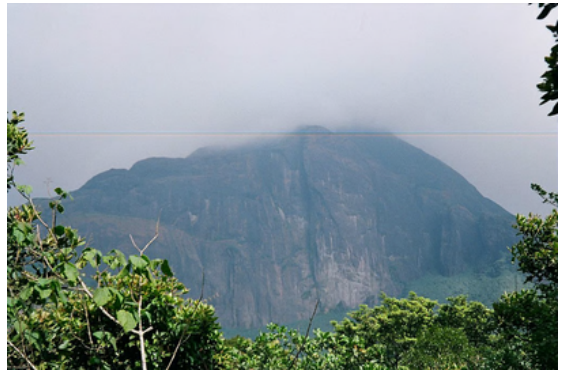
- **Geographical Importance:** It is one of the world’s oldest fold mountain ranges that extends from Gujarat to Delhi over nearly 700 km.
- **Barrier Against Desertification:** The Aravallis prevent the eastward spread of the Thar Desert and reduce dust storms in northern India.
- **Ecological Importance:** The range supports rich biodiversity through forests, grasslands and wildlife habitats.
- **Hydrological Importance:** The range acts as a major watershed and is the source of rivers like Sabarmati, Luni and Banas.
- **Economic and Cultural Importance:** They support agriculture, livestock and mining while hosting important cultural and religious sites.

Measures to Protect the Aravallis

- **Aravalli Green Wall Initiative:** Large-scale restoration programme by MoEFCC focusing on Afforestation, Grassland restoration, Wetland restoration etc.
- **Control on Mining :** Strict regulation of illegal mining and encroachments along with enforcement of Supreme Court directives.
- **Soil Conservation:** Construction of check dams, contour trenches and rainwater harvesting structures.

KEY DRIVERS OF ARAVALLI ECOSYSTEM DEGRADATION	
CAUSE	EFFECT ON THE ARAVALLI ECOSYSTEM
 UNREGULATED MINING ACTIVITIES	Extensive mining has adversely affected hills, forest cover, soil health, and groundwater reserves.
 FOREST COVER REDUCTION	Declining forest areas have weakened the region's natural defense against desert expansion.
 URBAN EXPANSION AND LAND ENCROACHMENT	Rapid growth of settlements has disturbed forest and grassland habitats.
 UNSUSTAINABLE GRAZING PRACTICES	Excessive livestock grazing has diminished vegetation and accelerated land degradation.
 ECOSYSTEM FRAGMENTATION	Breaks in habitat continuity have disrupted wildlife movement and heightened human-animal interactions.

Agasthyamalai Biosphere Reserve



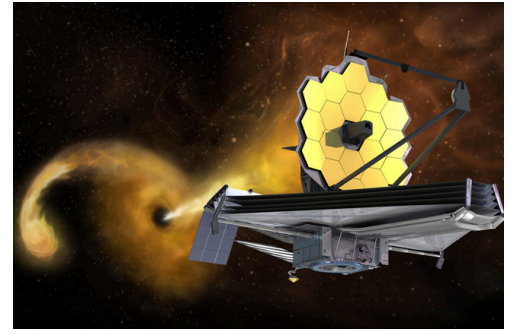
Supreme Court ordered immediate removal of encroachers and demolition of illegal structures across Agasthyamalai landscape comprising Agasthyamalai BR.

About Agasthyamalai Biosphere Reserve

- Located in southern Western Ghats, in Tamil Nadu and Kerala.
- Included in the World Network of Biosphere Reserves under UNESCO's Man and Biosphere (MAB) Programme (2016).
- The reserve includes three wildlife sanctuaries, Shendurney, Peppara and Neyyar, as well as the Kalakad Mundanthurai Tiger Reserve.

James Webb Space Telescope

JWST Detects Weather Patterns on Exoplanet WASP-94A b Located 700 Light-Years Away

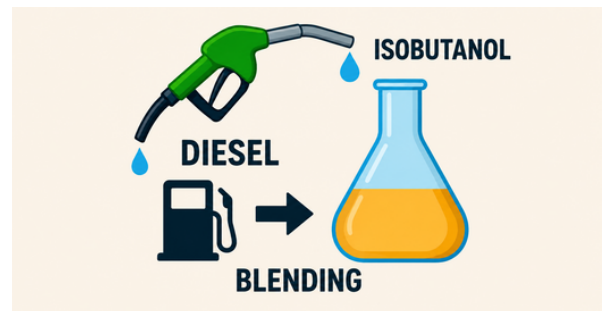


About James Webb Space Telescope (JWST)

- JWST is the largest, most powerful, and most advanced space telescope ever launched.
- **Partnership:** Joint mission of NASA, European Space Agency (ESA), and Canadian Space Agency (CSA).
- **Launch:** 25 December 2021.
- **Location:** Operates at Lagrange Point 2 (L2), about 1.5 million km from Earth.
- **Objectives:** Study the early universe, galaxy evolution, star formation and death, and exoplanets/planetary systems to understand cosmic history and the potential for life beyond Earth.

Isobutanol

India is likely to introduce blending of isobutanol with diesel.

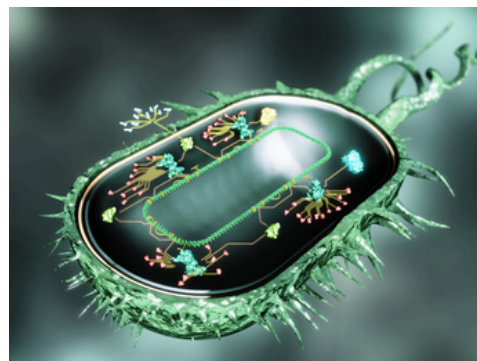


About Isobutanol

- Isobutanol is a **four-carbon alcohol** ($C_4H_{10}O$), making it a **higher alcohol** compared to ethanol, which contains only two carbon atoms.
- Can be produced from **renewable sources** like biomass, agricultural waste, or through **processes linked to ethanol or sugarcane production**.
- **Uses:** **Industrial solvents** in products like paints, coatings; **potential biofuel** for transportation, etc.
- **Suitability in Blending with diesel:** Blends **uniformly without any additional additives**, **higher energy content**, **less volatile and corrosive** offering higher compatibility with existing engines and fuel infrastructure.

Synthetic Biology

Understanding of genes, cells, along with advances in AI have caused engineering cells and organisms on a genome-wide scale with desired properties.















About Synthetic Biology

- **Meaning:** Involves **redesigning organisms for useful purposes** by engineering them to have **new abilities**.
 - E.g. harnessing microorganisms for **bioremediation to clean pollutants**, modifying rice to **produce beta-carotene** for preventing Vitamin A deficiency, etc.
- **Comparison with Genome Editing:**
 - In synthetic biology, scientists **typically stitch together long stretches of DNA** (already found in an organism or entirely novel) and insert them into an organism's genome.
 - In genome editing, scientists **typically use tools to make smaller changes** (delete or add small stretches of DNA) to organism's own DNA.

Challenges and Concerns Associated with Synthetic Biology

- **Affordability** Personalized therapies could be **particularly expensive**.
- **Biosafety:** Potential **unintended risks of releasing genetically engineered microorganisms** into environment.
- **Biosecurity Risks:** Empower nefarious actors to **develop bioweapons** (e.g. by accelerating development of toxins).
- **Cyberbiosecurity:** Due to **growing interaction between biology and automation**.
- **Ethical challenges:** Issues regarding **engineering life, equity and distribution of risk, benefits, and access**, etc.

MAJOR APPLICATIONS OF SYNTHETIC BIOLOGY		
DOMAIN	APPLICATION AREA	BRIEF DESCRIPTION
 HEALTHCARE	 Precision Cell and Gene Treatments	Customized genetic and cellular interventions designed to address the fundamental causes of diseases.
	 Smart Drug Delivery	Engineered microbes can transport medicines directly to affected cells, improving treatment effectiveness and specificity.
	 Advanced Regenerative Therapies	Enables innovations such as biofabricated organs, tissue engineering, and cross-species organ transplantation.
 AGRICULTURE & SOIL RESTORATION	 Microbial Soil Enhancement	Designed microorganisms can act as biofertilizers, biological pest-control agents, and beneficial soil enhancers.
	 Environmental Soil Surveillance	Biosensor technologies facilitate continuous tracking of pollutants and other critical soil indicators.
 SUSTAINABILITY & EMISSION CONTROL	 Biological Carbon Capture	Synthetic biological systems can improve carbon fixation through innovative metabolic pathways.
	 Plastic Waste Reduction	Specialized enzymes and engineered microbes help decompose plastics and support the production of eco-friendly alternatives.
 DECENTRALIZED PRODUCTION SYSTEMS	 Localized Biomanufacturing	Promotes distributed production units located near biomass or raw-material sources, reducing logistical costs and emissions.

Lokmata Ahilyabai Holkar



Prime Minister pays tribute to Lokmata Ahilyabai Holkar on her birth anniversary.

About Ahilya Bai Holkar (1725 - 1795)

- She was the visionary queen of the **Holkar dynasty** who ruled **Malwa** in the **18th century**.
- Known as the “**Philosopher Queen**”.

Early Life:

- Born in village of **Chondi, Ahmednagar (Maharashtra)**.
- Married to **Malhar Rao Holkar**.
- After the deaths of her husband, father-in-law and son, **she took charge of Malwa in 1767 (Indore was one of the major cities)**.

Key Contributions

- She promoted **trade, textile industries, education and public welfare**.
- Established a textile industry in **Maheshwar, famous for Maheshwari Sarees**.
- **Restored major temples like: Kashi Vishwanath Temple, Somnath Temple**.
- **Architectural Legacy:** Build **Maheshwar Fort (Ahilya Fort)** on the banks of **Narmada River**.

Exercise PRAGATI

India Concludes Maiden Multilateral Exercise PRAGATI (Partnership of Regional Armies for Growth And Transformation in the Indian Ocean Region) 2026 for Indian Ocean Region Partners.



About Exercise PRAGATI

- **Duration:** Two-week exercise.
- **Participating Nations:** India, along with 12 friendly regional partners- Bhutan, Cambodia, Indonesia, Laos, Malaysia, Maldives, Myanmar, Nepal, Philippines, Seychelles, Sri Lanka, and Vietnam.
- **Objectives:** Enhance counter-terrorism capabilities, specialized tactical skills, multinational interoperability, and intelligence-sharing among participating armies.