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DAILY CURRENT AFFAIRS



20th January, 2024

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S.NO.	TOPIC
1.	THE CORAL ECOSYSTEM
2.	NAGARA STYLE OF TEMPLE ARCHITECTURE
3.	PRELIMS POINTERS

THE CORAL ECOSYSTEM

SOURCE: [INDIAN EXPRESS](#)

TAG: GS Paper III- *Marine ecosystem, Environmental Pollution and Degradation.*

PRACTICE QUESTIONS

Mains

Q. Examine the importance of coral reefs as biodiversity hotspots and their role in supporting marine life. Also, discuss the importance of international cooperation and sustainable practices to safeguard coral ecosystems for future generations. (250 words)

WHY IN NEWS?

- ❖ *The According to a press release, scientists have successfully mapped the **world's largest deep-sea coral reef, extending from Florida to South Carolina** and exceeding the size of Vermont.*
- ❖ *Derek Sowers, the Mapping Operations Manager for the Ocean Exploration Trust, highlighted the significance of this discovery, stating, "**It's essentially the largest deep-sea coral mound region in the world that's been documented so far.**" The exploration, documented in a paper by the scientific journal **Geomatics**, utilized new technology enabling 3D mapping of the ocean floor, revealing a sprawling ecosystem **covering an area three times the size of Yellowstone National Park.***
- ❖ *Sowers emphasized that around 75% of the world's oceans remain unmapped in high resolution, underscoring the importance of advancing ocean exploration.*

INTRODUCTION TO CORAL ECOSYSTEM

- ❖ **Coral ecosystems**, including coral reefs and deep-sea corals, are intricate environments with unique characteristics and ecological significance.
- ❖ **Coral reefs**, formed by coral polyps on calcium carbonate exoskeletons, thrive in clear, shallow tropical waters. The Great Barrier Reef exemplifies the **largest coral reef system, spanning over 1,500 miles.**
- ❖ **Deep-sea corals**, resilient inhabitants thriving up to **6,000 meters below the ocean's surface**, rival their shallow-water counterparts in diversity.
- ❖ **Growth Conditions for Coral Reefs:**
 - ☛ **Water temperature between 23°C to 25°C** is most favourable for coral reefs' growth, with the survival range **extending from 20°C to 35°C.**
 - ☛ Coral reefs can survive only under saline conditions, **with an average salinity between 27% to 40%.**
 - ☛ Shallow water, with a **depth less than 50m**, is the optimal growth condition for coral reefs.
 - ☛ The depth of the **water should not exceed 200m.**

TYPES OF CORAL REEFS

- ❖ **Fringing Reef:**
 - ☛ These are coral reefs found very **close to the land**, forming a **shallow lagoon known as Boat Channel.**
 - ☛ Examples include **Sakau Island in New Hebrides** and the South Florida Reef.



❖ **Barrier Reef:**

- **Considered the largest, highest, and widest reefs among the three types**, they develop off the coast and parallel to the shore as a broken and irregular ring.
- The **Great Barrier Reef in Australia**, spanning 1,200 miles, is a notable example.

❖ **Atolls:**

- Atolls are **roughly circular reefs surrounding a large central lagoon**.
- They are found away from **deep-sea platforms** and are located **around an island or on a submarine platform in an elliptical form**.
- Examples include **Fiji Atolls, Suvadivo in Maldives, and Funafoothis Atoll of Ellice**.

DIFFERENCE BETWEEN CORAL REEFS AND DEEP-SEA CORALS

CHARACTERISTICS	CORAL REEFS	DEEP-SEA CORALS
Depth Range	✓ Shallow waters, typically < 50m	✓ Extreme depths, up to 6,000m
Temperature Tolerance	✓ Sensitive to temperature fluctuations, optimal range 23°C to 25°C	✓ Endure cold waters as low as -1°C (30.2°F)
Geographical Distribution	✓ Tropical and subtropical regions, commonly found in clear, shallow waters	✓ Global distribution from the United Kingdom to Antarctica
Size	✓ Extensive, with some systems like the Great Barrier Reef spanning over 1,500 miles.	✓ Vary greatly in size, from tiny polyps to massive reefs stretching 40 km.
Age	✓ Generally younger ecosystems, with some reaching thousands of years.	✓ Remarkably old, with some colonies reaching 40,000 years.
Ecological Significance	✓ Essential habitats and shelters for marine organisms, protect coastlines.	✓ Provide habitats for marine life, supporting invertebrates and commercially.

IMPORTANCE OF CORAL REEFS

- ❖ **Protection of Coastlines:** Coral reefs act as **natural barriers, protecting coastlines from the damaging effects** of wave action and tropical storms.
- ❖ **Marine Habitats:** They provide essential habitats and shelter for a myriad of marine organisms, **contributing to the rich biodiversity of the ocean**.
- ❖ **Nutrient Source:** Coral reefs are a source of nitrogen and other **essential nutrients for marine food chains**, supporting the ecosystem's vitality.





- ❖ **Carbon and Nitrogen Fixing:** They play a role in **carbon and nitrogen fixation**, aiding in the nutrient cycling essential for marine life.
- ❖ **Indicators of Ecosystem Health:** Coral reefs serve as **key indicators of global ecosystem health**, offering insights into the **overall well-being of marine environments**.

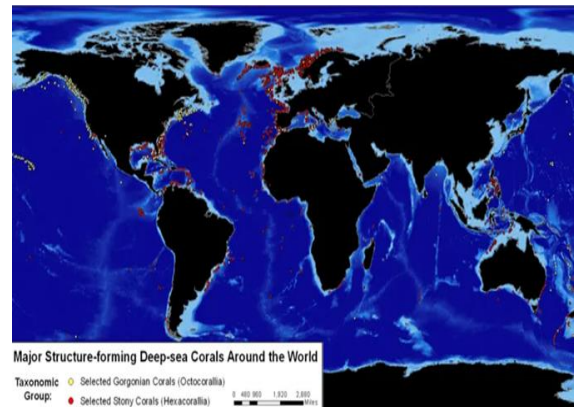
THREATS TO CORAL REEFS

- ❖ **Extreme Climate Conditions:** The **high temperature of water contributes to the declination of coral reefs**, unable to survive in elevated temperatures. Scientists predict a **decline in most coral reefs globally with increasing rates of ocean warming**.
- ❖ **Overfishing:** This is a significant concern, leading to an **ecological imbalance within coral reefs**. **Overfishing disrupts the delicate balance of marine life** within these ecosystems.
- ❖ **Coastal Development:** The development of **coastal infrastructure and tourist resorts** in proximity to coral reefs causes significant damages, impacting their health and sustainability.
- ❖ **Pollution:** **Direct dumping of toxic pollutants** into the ocean results in **increased nitrogen levels in seawater**, promoting the overgrowth of algae, which can be harmful to coral reefs.
- ❖ **Sedimentation:** Coastal **construction leads to soil erosion**, increasing sedimentation in rivers. This, in turn, can **smother corals by blocking the sunlight** essential for their survival.
- ❖ **Overexploitation (Over-fishing):** Coral reefs face threats from overfishing for various purposes, including **food, aquarium trade, and medicinal purposes**.
- ❖ **Destructive Fishing Practices:** Practices like purse seining, fine-mesh fishing, **'moxy' nets, cyanide fishing**, and blast fishing cause unsustainable damage to coral reefs.
- ❖ **Marine Pollution:** Oil spills, discharge of ballast water, and dumping of solid waste contribute to coral reef degradation.
- ❖ **Poorly Managed Tourism:** Tourism-related activities such as snorkeling, diving, and boating can cause direct physical damage to reefs, impacting their health.
- ❖ **Global Warming and Climate Change:** Rising ocean temperatures, coral bleaching, sea level rise, and ocean acidification pose severe threats to coral reefs.
- ❖ **Invasive Alien Species:** Spread through **ballast water, invasive species threaten** the biodiversity of coral reefs.



DEEP-SEA CORALS : SURVIVING THE ABYSS

- ❖ **Deep-sea corals thrive in extreme conditions, showcasing unique features and playing a crucial role in marine ecosystems.**
- ❖ **Thriving in Extreme Conditions:**
 - Resilient inhabitants surviving up to 6,000 meters below the ocean's surface, deep-sea corals exhibit remarkable diversity comparable to shallow-water corals.
- ❖ **Global Geography and Distribution:**
 - Found globally from the United Kingdom to Antarctica, **deep-sea corals endure cold waters as low as -1°C (30.2°F)**.
- ❖ **Features and Diversity:**
 - With a spectrum of colors and diverse shapes, deep-sea corals vary greatly in size, from tiny polyps to massive reefs stretching 40 km.





- ❖ **Age and Lifespan:**
 - ☛ Very old, with some colonies reaching **an age of 40,000 years**, deep-sea corals stand as the oldest marine organisms on record.
- ❖ **Significance and Natural History:**
 - ☛ Functioning as crucial habitats, **deep-sea corals provide support for invertebrates** and commercially important fish species. Their unique **compounds offer potential for medical breakthroughs**, and growth rings provide insights into Earth's climate history.
- ❖ **Climate Change and Ocean Acidification:**
 - ☛ Skeletons serve as indicators of historical climate conditions, but deep-sea corals are vulnerable to climate change, with ocean acidification affecting growth and skeletal strength.
- ❖ **Technology and Exploration:**
 - ☛ Advanced mapping technologies, including **multibeam sonar, enable 3D mapping of ocean floors**. Underwater **vehicles like ROVs and AUVs** play a crucial role in remote exploration.

CONSERVATION EFFORTS

- ❖ **Establishment of Marine Protected Areas (MPAs):** Creating protected zones limits physical damage caused by fishing gear.
- ❖ **Legislation to Prevent Over-harvesting:** Legal measures prevent overfishing and destructive practices.
- ❖ **Monitoring of Coral Reefs:** Regular monitoring develops effective management strategies.
- ❖ **Building Awareness:** Raising awareness about coral reefs and their diversity is crucial.
- ❖ **Supporting Reef-Dependent Communities:** Sustainable livelihoods and community support are vital for conservation.
- ❖ **International Cooperation:** Examples like Chile's protection of all seamounts from bottom trawling contribute to conservation initiatives.

CONCLUSION

- ❖ *In conclusion, **coral ecosystems, comprising reefs and deep-sea corals, are crucial for biodiversity.** Coral reefs protect coastlines and support marine life but face threats like climate change and pollution. Deep-sea corals, thriving in extreme conditions, **add diversity and scientific potential but encounter challenges from fishing and climate change.** Preserving both coral realms is vital. Conservation measures like Marine Protected Areas, legislation, and global cooperation are key. Our **collective commitment to sustainable practices, research, and public awareness is crucial.** Upholding the balance of coral ecosystems is not only an environmental duty but a shared responsibility for the health of our oceans and future generations.*



NAGARA STYLE OF TEMPLE ARCHITECTURE

SOURCE: INDIAN EXPRESS

TAG: GS Paper I- **Temple Architecture, Cave Architecture, Indian Architecture**

UPSC PYQs

Mains

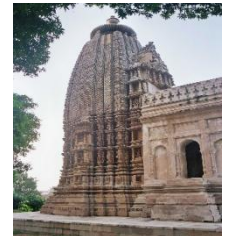
Q. How will you explain that medieval Indian temple sculptures represent the social life of those days? (2022)

WHY IN NEWS?

- ❖ *The Ram temple in Ayodhya will be inaugurated on January 22. Chandrakant Sompura, 81, and his son Ashish, 51, have designed the complex in the Nagara style of temple architecture.*

ABOUT NAGARA STYLE OF TEMPLE ARCHITECTURE

- ❖ The Nagara style of temple architecture, **popular in northern India**, is characterized by entire temples built on **stone platforms with accompanying steps**.
- ❖ Unlike many other temple styles, Nagara temples in North India typically **lack elaborate boundary walls and gateways**.
- ❖ A **distinctive feature** is the placement of the **garbhagriha directly beneath the tallest tower**.
- ❖ Nagara temples **exhibit variations based on the shape of the shikhara**, leading to numerous subdivisions.
- ❖ The **presence of the Amalaka or Kalash atop the shikhara** is another defining characteristic.
- ❖ The **Kandariya Mahadev Temple in Madhya Pradesh** serves as a prominent **example of Nagara-style architecture**.
- ❖ Additional instances of **Nagara-style temples in India include the Sun Temple in Konark, the Sun Temple in Modhera, Gujarat, and the Ossian Temple in Gujarat.**



CLASSIFICATION OF NAGARA STYLE OF TEMPLE ARCHITECTURE BASED ON THE STYLE OF SHIKHARA

- ❖ **Rekha-Prasad or Latina:**
 - ☛ Characterized by a **simple shikhara** with a square base and **inwardly curved walls leading to pointed apexes**.
 - ☛ Early medieval examples include **the Markhera Sun Temple in Madhya Pradesh and the Sri Jagannath Temple in Orissa**.
- ❖ **Shekari:**
 - ☛ A variation of Latina, **featuring a main Rekha-prasad Shikhara** and additional rows of smaller towers on each side.
 - ☛ Pedestals and corners adorned **with mini Shikharas**.
 - ☛ **Notable example: Khajuraho Hokandari Yamahadev Temple.**
- ❖ **Bhumija:**
 - ☛ Evolved from the Latina style, developed in **Malwa during the Paramara dynasty rule**.
 - ☛ **Exhibits flat, upward-tapering** projections with a central Latin cusp and miniature cusps on quadrant spires.
 - ☛ **Udayeshwar Temple** in Madhya Pradesh is an example.





❖ Valabhi:

- ☛ Rectangular temples with **barrel-vaulted roofs**, earning the nickname "**wagon-vaulted**" structures.
- ☛ **Example: Telika Mandir** in Gwalior, constructed in the ninth century.



❖ Phamsana:

- ☛ Short and broad structure with a **roof consisting of numerous slabs** that rise with a gentle slope **above a straight slope**, resembling a pyramid meeting at one point above the building's center.

SUB-SCHOOLS OF NAGARA SCHOOL OF ARCHITECTURE

❖ Odisha School:

- ☛ **Shikara (Deul)** rises vertically before curving in at the top, forming a square base and a circular upper part.
- ☛ Exterior of these temples is intricately carved, but interiors are generally simple.
- ☛ Unlike North Indian Nagara temples, **Odisha temples typically have boundary walls.**



❖ Chandel School:

- ☛ Temples are designed as a **single unit with Shikaras curving from bottom to top.**
- ☛ Multiple miniature Shikaras rise from **the central tower**, and towers gradually ascend to cap both **porticos and halls.**

❖ Solanki School:

- ☛ **Similar to Chandel School** but with carved **ceilings resembling a true dome.**
- ☛ Notable for intricate decorative motifs on **both inner and outer walls, except for the central shrine.**



FAMOUS NAGARA TEMPLES

❖ Central India:

☛ **Uttar Pradesh, Madhya Pradesh, Rajasthan:**

- ✓ **Oldest temples** in central India from the Gupta period.
- ✓ Central Indian temples have a plain **appearance with four pillars supporting the mandapa (porch) and a small Garbhagriha (sanctum).**
- ✓ **Example: Deogarh(pic)** constructed in the late 6th century in Uttar Pradesh, follows the **Panchayatana architectural style with a rectangular main shrine and four smaller sub-shrines at corners.**



☛ **Madhya Pradesh:**

- ✓ **Lakshmana Temple in Khajuraho, built by the Chandela King, dedicated to Lord Vishnu.**
- ✓ **Four smaller temples at each corner with curved pyramidal structures and prominent Amalek crowned with a Kalash or vase.**

❖ West India:

☛ **Gujarat, Rajasthan:**

- ✓ **Sun Temple at Modhera, built in 1026 by Raja Bhimdev I of the Solanki dynasty.**
- ✓ **Influence of Gujarati wood carving tradition.**



- ✓ Various types and colors of stone used, **including sandstone, grey to black basalt, and white marble.**
- ✓ **Notable marble example: Dilwara Jain Temple in Mount Abu(pic)**



❖ East India:

☛ Odisha:

- ✓ Konark Sun Temple ruins, **constructed in 1240 AD**, featuring a massive shikhara that collapsed in the nineteenth century.
- ✓ Quadrilateral precinct with the **largest enclosed area in Hindu construction.**
- ✓ Example: **Surya or Sun temple ruins at Konark.**

☛ Assam:

- ✓ **Gupta style prevalent up to the tenth century**, followed by the distinctive **Ahom style in the twelfth to fifteenth centuries.**
- ✓ **Kamakhya Temple(pic)**, constructed in the **seventeenth century**, exemplifies the **East Indian Nagara architecture.**




☛ Bengal:

- ✓ Pala style associated with **sculptures from the ninth to the eleventh centuries**, and Sena rulers associated with sculptures from the mid-eleventh to **mid-thirteenth centuries.**
- ✓ Temples in Bengal known for expressing the native Vanga style.
- ✓ **Example: Siddheshvara Mahadeva Temple in Barakar, Burdwan District**, with a tall curved shikhara and a massive Amalaka.

DIFFERENCE BETWEEN DRAVIDA STYLE & NAGARA STYLE OF TEMPLE ARCHITECTURE

Basis	Dravida Style	Nagara Style
Location	✓ Temples between Krishna River and Kanyakumari.	✓ North Indian temples.
Central Tower	✓ Pyramidal shaped central tower (Vimana).	✓ Beehive-shaped curvilinear tower (Shikhara).
Gopuram	✓ Prominent, stylized, and large.	✓ Shikhara is prominent; gateway is modest/absent.
Boundary	✓ Elaborate boundaries.	✓ Emphasizes less on boundaries.
Entrance	✓ Dwarpalas at the entrance.	✓ Ganga and Yamuna at the entrance.
Tower	✓ Always a single tower.	✓ Multiple towers (e.g., Khajuraho temple).
Pedestal	✓ More or less at ground level.	✓ Pedestals are higher than ground.
Deities Outside	✓ Temples have deities outside.	✓ Temples have deities inside.
Purpose	✓ Religious, administrative, educational.	✓ Mostly religious.

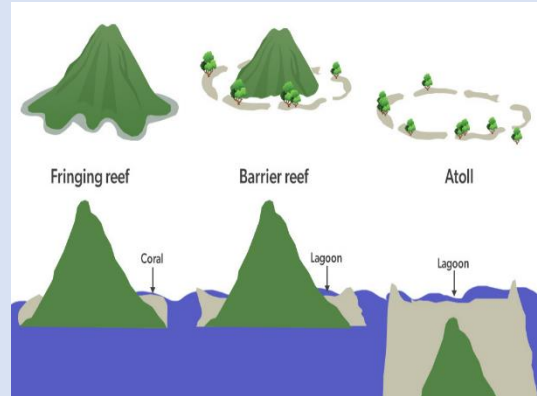


TOPIC	DISCRIPTION
<p>LARGEST DEEP SEA CORAL REEF</p>	<p>WHY IN NEWS?</p> <ul style="list-style-type: none"> ❖ Scientists have achieved a groundbreaking milestone by mapping the world's largest deep-sea coral reef, extending hundreds of miles off the Atlantic coast of the United States. The massive 6.4-million-acre reef, larger than the state of Vermont, was unveiled using advanced mapping technology, allowing for the creation of detailed 3D images of the seafloor. <p>RECENT FINDING:</p> <ul style="list-style-type: none"> ❖ The deep-sea coral reef is situated on the Blake Plateau, around 100 miles off the southeastern coast of the United States. ❖ Covering approximately 310 miles in length and 68 miles in width, the reef is a cold-water habitat, representing the largest coral reef habitat discovered in the deep sea. ❖ Advanced sonar mapping surveys, combining data from 31 surveys, were utilized to create an almost complete map of the seafloor in the Blake Plateau region. ❖ This discovery provides critical insights into the vast and intricate coral ecosystem off the U.S. East Coast, highlighting the need for continued exploration and conservation efforts in the largely uncharted marine territories.  <p>CORAL REEFS: OVERVIEW</p> <ul style="list-style-type: none"> ❖ Formation: <ul style="list-style-type: none"> ☛ Coral reefs are constructed and composed of tiny animals known as coral "polyps," akin to anemones and jellyfish. ❖ Structure: <ul style="list-style-type: none"> ☛ Polyps, residing in colonies affixed to the rocky sea floor, have soft bodies covered by calcareous skeletons, formed by extracting calcium salts from seawater. <p>CORAL REEFS: OVERVIEW</p> <ul style="list-style-type: none"> ❖ Formation: <ul style="list-style-type: none"> ☛ Built by coral polyps—tiny animals related to jellyfish and anemones. ❖ Structure: <ul style="list-style-type: none"> ☛ Polyps have soft bodies with calcareous skeletons formed from extracting calcium salts from seawater. ❖ Growth: <ul style="list-style-type: none"> ☛ Tubular skeletons develop upward and outward, creating coral reefs. ❖ Life Cycle:



- ☛ **Dead polyps shed skeletons**, providing a foundation for new growth, leading to reef accumulation.
- ❖ **Transformation:**
 - ☛ **Coral reefs can evolve into coral islands**, as seen in **Lakshadweep**.

- ❖ **Variety:**
 - ☛ Corals come in diverse forms and colors; **algae deposit calcium carbonate, aiding growth.**



CORAL REEF RELIEF FEATURES

- ❖ **Fringing Reefs (Shore Reefs):**
 - ☛ Directly grow from a **shore in a narrow belt.**
 - ☛ Create **shallow lagoons close to the beach.**
 - ☛ Examples include **New Hebrides Society islands** and **Florida's southern coast.**
- ❖ **Barrier Reefs:**
 - ☛ Extensive **linear reef complexes parallel to a shore**, with a lagoon.
 - ☛ Largest reef type, e.g., the **Great Barrier Reef off Australia's NE coast.**
- ❖ **Atolls:**
 - ☛ **Circular oceanic reef system** around a central lagoon.
 - ☛ Various forms include true atoll, **atoll surrounding a lagoon with an island, and atoll island.**
 - ☛ Common in the **Pacific, including Fiji, Funafuti, and Lakshadweep Islands.**

BOEING'S STATE-OF-THE-ART FACILITY

WHY IN NEWS?

- ❖ **Prime Minister Narendra Modi inaugurated the Boeing India Engineering & Technology Center (BIETC) campus in Bengaluru, Karnataka.**
- ❖ **Boeing Sukanya Program was launched to support the entry of more girls into India's aviation sector.**

BIETC (BOEING INDIA ENGINEERING & TECHNOLOGY CENTER)

- ❖ **Objective:**
 - ☛ Boeing's **new campus in India.**
 - ☛ A cornerstone for **partnership with startups, private entities, and the government ecosystem in India.**
 - ☛ Focus on developing **next-generation products and services for the global aerospace and defence industry.**
 - ☛ **Investment:** Rs. 1,600 crores.





- ☛ **Significance:** Boeing's largest investment outside the USA.

BOEING SUKANYA PROGRAM:

❖ Objective:

- ☛ Support the **entry of more women into India's aviation sector.**
- ☛ Provide opportunities for **girls to learn STEM (Science, Technology, Engineering, and Maths) skills.**

❖ Initiatives:

- ☛ **Establishment of STEM Labs at 150 locations** to spark interest in STEM careers.
- ☛ **Scholarships for women** undergoing pilot training.

BOEING'S PRESENCE IN THE INDIAN MARKET

❖ Focus:

- ☛ Boeing emphasizes **delivering value to Indian** customers through advanced technologies.

❖ Supply Chain Strengthening:

- ☛ Collaborates with **over 300 local companies in India.**
- ☛ Joint ventures for manufacturing **fuselages for Apache helicopters and vertical fin structures for the 737 aircraft family.**
- ☛ **Annual Sourcing:** Approximately **\$1 billion** sourced annually from India.

SRI SRI AUNIATI SATRA

WHY IN NEWS?

- ☛ *Congress leader Rahul Gandhi, as part of his Bharat Jodo Nyay Yatra, visited the ancient Sri Sri Auniati Satra, a 350-year-old Vaishnavite monastery in Assam's Majuli district.*

AUNIATI SATRA

❖ Establishment:

- ☛ Founded in **Majuli in 1663 A.D. by Ahom King Sutamla**, later named Jayadhwaj Singha upon adopting Vaishnavism.
- ☛ Elevated land of **Majuli known for Auni Paan**, leading to the name **Auniati Satra.**

❖ Cultural and Religious Significance:

- ☛ Holds a prominent place in Assam's cultural and religious history.
- ☛ The idol which receives daily worship in the **Satra Temple (Manikuta) is the idol of Lord Krishna called Govinda.**
- ☛ This idol was originally **brought from Jagannath Kshetra (Puri, Orissa)** and installed there with **all the Vedic religious rituals.**

❖ Branches and Expansion:

- ☛ Main branch in **North Guwahati established in 1915 A.D.**
- ☛ Kaliapani branch **built in 2003.**
- ☛ A total of **twelve branches** in various parts of Assam.





❖ **Cultural Activities:**

- ☛ Preservation of **Satriya culture**.
- ☛ **Satriya performances:** *Natua, Apsara, Sutradhar, Ozapali, Sali, Jumura, Krishna Gopi Nritya*, and more.
- ☛ **Songs (Satriya Geeta):** *Gayana Geet, Ozapali Geet, Janmastami Geet, and others*.

STRUCTURAL SIGNIFICANCE:

❖ **Dwelling and Habitat:**

- ☛ Circular structure with **peripheral houses (Baha)** and **central Namghara (Temple)** and **Manikuta**.
- ☛ **Satradhikar, Deka Satradhikar, and Govindapuriya** reside in specific locations.
- ☛ **Bhakatras (Vaishnavas Devotees)** live in **rows of huts** on the four lines (**East, West, North, South**) known as **Hati**.

**JAPAN BECOME 5th
COUNTRY TO
LAND ON MOON**

WHY IN NEWS?

- ❖ **Japan's Smart Lander for Investigating Moon (SLIM)** recently landed on the moon's surface, marking **Japan as the fifth country to achieve this feat**. The mission faced a challenge as its **solar panels were unable to generate electricity**, possibly due to incorrect angling.

ABOUT SLIM

❖ **Objective:**

SLIM's primary mission is to **demonstrate "precision" landing technology**, achieving a landing **accuracy of 100 meters**, which is a significant **advancement compared to conventional methods**.

❖ **Landing Technology:**

Employing a "two-step landing" method, SLIM uses shock absorbers to make contact with the

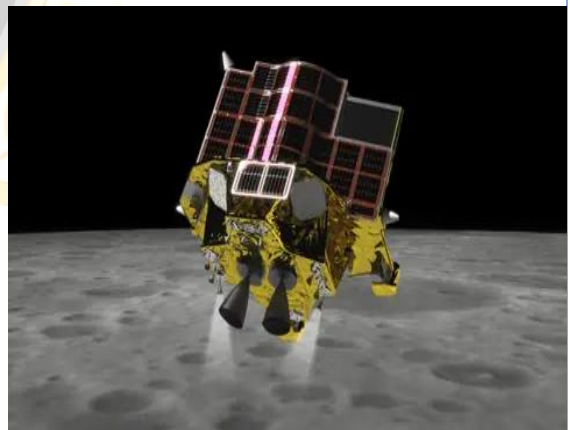
lunar surface, ensuring a precise and **stable touchdown**.

❖ **Mini-Probes:**

Upon landing, SLIM **successfully deployed two mini-probes**—a hopping **vehicle and a wheeled rover**—to **capture images of the spacecraft** and transmit them to Earth.

❖ **International Collaboration:**

SLIM is a collaborative effort **involving tech giant Sony Group, toymaker Tomy**, several Japanese universities, and the **Japan Aerospace Exploration Agency (JAXA)**.





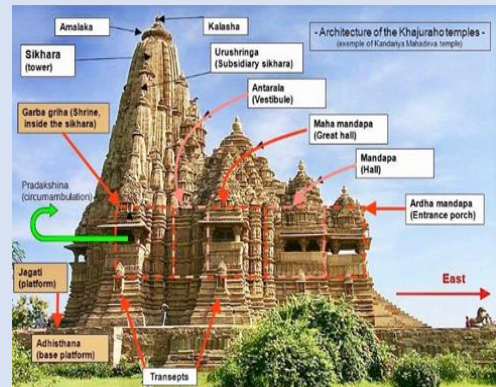
NAGARA STYLE OF TEMPLE ARCHITECTURE

WHY IN NEWS?

- ❖ The **upcoming inauguration of Ayodhya's Ram temple on January 22** has drawn attention to the architectural style in which it is being built— **the Nagara style**. **Designed by Chandrakant Sompura and his son Ashish**, the **temple showcases the Nagara style of temple architecture**.

ABOUT THE NAGARA STYLE

- ❖ **Origin:**
 - ☛ The Nagara style emerged around the **fifth century CE during the late Gupta period in northern India**, in contrast to the Dravida style prevalent in southern India.
- ❖ **Debated Terminology:**
 - ☛ Some scholars prefer the term "**languages**" over "**styles**," considering Nagara and Dravida as "the two great classical languages of Indian temple architecture."
- ❖ **Distinctive Feature - Shikhara:**
 - ☛ Nagara temples feature a **raised plinth**, with the most **sacred part being the garbha griha (sanctum sanctorum)**.
 - ☛ The towering shikhara, resembling a '**mountain peak**,' is a prominent and **identifiable aspect of Nagara architecture**.
- ❖ **Circumambulatory Passage and Mandapas:**
 - ☛ Nagara temples typically include a **circumambulatory passage around the garbha griha** and one or **more mandapas (halls)** on the same axis.
 - ☛ Elaborate **murals and reliefs often adorn the walls**.



FIVE MODES OF NAGARA ARCHITECTURE

Depending on the period and geography, Nagara architecture has five modes:

- ❖ **Valabhi:**
 - ☛ Associated with **Early Nagara Style**, resembling a **masonry rendering of barrel-roofed structures**.
- ❖ **Phamsana:**
 - ☛ Evolving from Valabhi, **characterized by multi-eave towers and a piling up of slabs**.
- ❖ **Latina:**
 - ☛ A single, **slightly curved tower with four equal sides**, becoming prominent from the tenth century.
- ❖ **Shekhari:**
 - ☛ Emerged from composite Latinas, featuring attached **sub-spires or spirelets**.



GREAT INDIAN BUSTARD

❖ Bhumija:

- ☛ Also stemming from composite Latinas, with miniature spires in horizontal and vertical rows, creating a grid-like effect.

COMPARISON TO DRAVIDA STYLE

❖ Vimana vs. Shikhara:

- ☛ In the Dravida style, the counterpart to the shikhara is the vimana.
- ☛ However, unlike Nagara, the vimanas are typically smaller than the gopurams (gatehouses) in the Dravida style.

❖ Boundary Walls:

- ☛ Dravida style often includes boundary walls, a feature less prevalent in Nagara temple complexes.

HYBRID FEATURES IN AYODHYA'S RAM TEMPLE

- ❖ Ayodhya's Ram temple exhibits "hybrid" features, incorporating elements from both Nagara and Dravida styles.
- ❖ While not having an elaborate gopuram, a 732m-long wall surrounds the temple compound.

WHY IN NEWS?

- ❖ *The Supreme Court directed the Centre to come clean on its plans to save the critically-endangered Great Indian Bustard by February.*

ABOUT GREAT INDIAN BUSTARD

- ❖ It is one of the world's largest flying birds, reaching 3-4 feet, the male is typically larger than the female.
- ❖ The Great Indian Bustard is seen as the flagship species of grasslands.
- ❖ It holds the status of the State bird of Rajasthan.
- ❖ **Habitat:** Endemic to the Indian subcontinent, the Great Indian Bustard is found in regions including Rajasthan, Gujarat, Madhya Pradesh, Karnataka, Andhra Pradesh, and some regions of Pakistan.
- ❖ The Great Indian Bustard faces risks like collisions with power lines and wind turbines, loss of grasslands, hunting, and the development of mines and human settlements in their habitats.

CONSERVATION STATUS

- ❖ **IUCN red List:** Critically Endangered
- ❖ **CITES:** Appendix I
- ❖ **Wildlife (Protection) Act, 1972:** Schedule I

CONSERVATION MEASURES

❖ Project Great Indian Bustard:

- ☛ Rajasthan government launched "Project Great Indian Bustard" to construct breeding enclosures and develop infrastructure
- ☛ Its aim to reduce human impact on the species' habitats.
- ☛ A conservation breeding facility was established in June 2019 at the Desert National Park in Jaisalmer through collaboration between





the **Ministry of Environment, Forest and Climate Change (MoEF&CC)**, the Rajasthan government, and the **Wildlife Institute of India (WII)**.

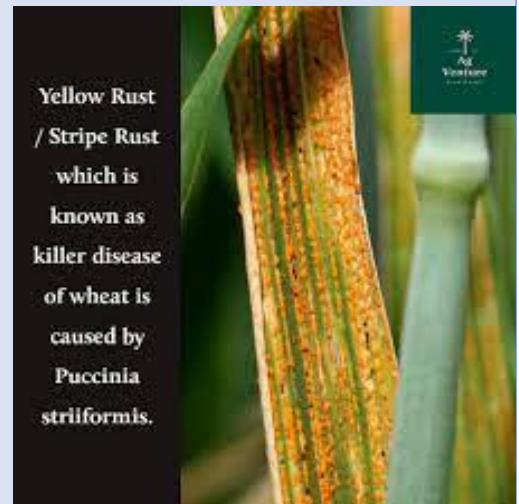
STRIPE RUST (YELLOW RUST) OF WHEAT

WHY IN NEWS?

- ❖ *The Karnal-based Indian Institute of Wheat and Barley Research (IIWBR) has appealed to the farmers to remain vigilant against yellow rust pest.*

WHAT IS YELLOW RUST?

- ❖ **Stripe rust** of wheat is caused by the basidiomycete fungus *Puccinia striiformis*.
- ❖ The fungus produces bright yellow to orange urediniospores 20 to 30 μm in diameter).
- ❖ Urediniospore production usually is followed by teliospore production late in the growing season. The pathogen survives in wheat as dormant mycelium in cooler climates.
- ❖ The first sign of stripe rust is the appearance of yellow streaks (pre-pustules), followed by small, bright yellow, elongated uredial pustules arranged in conspicuous rows on the leaves, leaf sheaths, glumes and awns.



IIWBR

- ❖ The **Indian Institute of Wheat and Barley Research (IIWBR)** underwent formal institutionalization as an institute in 2014 under the **Indian Council of Agricultural Research (ICAR)**.
- ❖ **Headquarter: Karnal, Haryana**
- ❖ Additionally, the institute operates an off-season nursery facility at **Regional Research Station, Dalang Maidan, Lahaul & Spiti, Himachal Pradesh**.
- ❖ Furthermore, the IIWBR manages a research farm at Hisar, further contributing to its comprehensive research activities related to wheat and barley crops.