







Daily CURRENT AFFAIRS

May 3rd, 2025





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Chandola Lake

Recently, the Gujarat High Court upheld a demolition drive undertaken by state authorities in Ahmedabad's Chandola Lake area.

About Chandola Lake

- It is an artificial lake located in Ahmedabad, Gujarat.
- It was established by the wife of a Mughal Sultan of Ahmedabad named Tajn Khan Nari Ali.
- The lake covers a land area of around 1200 hectares and is a major source of water for nearby industrial and residential areas.
- It is circular.
- The Kharicut Canal Scheme which is one of the oldest irrigation schemes of Gujarat was constructed with the main purpose of providing irrigation to 1,200 acres of rice land near Chandola lake in Ahmedabad.
- The lake is separated into two parts called the Chota Chandola and the Bada Chandola lake.
- It is also home to cormorants, painted storks, and spoonbill birds.

Question: What is the historical and ecological significance of Chandola Lake in Ahmedabad, and why has it recently been in the news?

Q. Consider the following statements regarding Chandola Lake in Gujarat:

1. It was constructed during the reign of the Mughal Emperor Akbar as part of a broader imperial water conservation strategy in western India.



- 2. The Kharicut Canal associated with the lake was intended exclusively for industrial water supply in the early 20th century.
- 3. Chandola Lake is divided into two parts and supports avian biodiversity, including species such as cormorants and spoonbills.
- 4. The lake is part of a notified Ramsar site due to its ecological significance in the Central Asian Flyway.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (b) Only two

Explanation:

- Statement 1 is incorrect: The lake was built by the wife of a Mughal Sultan named Tajn Khan Nari Ali, not during Akbar's reign.
- Statement 2 is incorrect: The Kharicut Canal Scheme was primarily for irrigating 1,200 acres of rice land, not for industrial use.









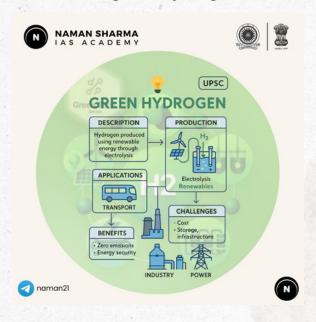
- Statement 3 is correct: The lake is divided into Chota and Bada Chandola and supports bird species like cormorants and spoonbills.
- Statement 4 is incorrect: Chandola Lake is not a Ramsar site.





Green Hydrogen Certification Scheme

Recently, the **Ministry of New and Renewable Energy (MNRE)** has launched the Green Hydrogen
Certification Scheme (GHCS) under the national green hydrogen mission.



About Green Hydrogen Certification Scheme (GHCS):

- GHCS aims to certify that hydrogen produced in India meets the criteria to be labelled as "green hydrogen", based on verified emissions data.
- The scheme enhances transparency, credibility, and traceability in hydrogen production and supports India's goal of becoming a global hub for green hydrogen exports.

The Bureau of Energy Efficiency (BEE) is the nodal agency responsible for the implementation of this scheme.

 Certification under GHCS also helps producers access carbon credits under the Carbon Credit Trading Scheme (CCTS), subject to additional requirements.

The scheme covers hydrogen produced using electrolysis with renewable energy or biomass conversion.

Features of the Green Hydrogen Certification Scheme of India

- Hydrogen can be officially recognised as "green" only if its non-biogenic greenhouse gas emissions do not exceed 2 kg of CO₂ equivalent (CO₂e)/kg of hydrogen, averaged over 12 months, under the GHCI.
- The scheme outlines a comprehensive certification processfor producers to verify that the hydrogen is produced using renewable energy and that the greenhouse gas emissions do not exceed 2 kg of CO₂ equivalent (CO₂e)/kg of hydrogen.
- The certification framework includes clear definitions, objectives, roles of stakeholders, eligible production pathways, and emissions quantification methods.

The GHCI operates with four types of certificates—

- · Concept Certificate,
- Facility-Level Certificate,
- Provisional Certificate
- Final Certificate.









Concept and Facility-Level certificates focus on design and operational readiness, while Provisional and Final certificates evaluate actual emissions based on production data.

Final certificates are mandatory for facilities benefiting from government incentives or intending to sell hydrogen domestically.

Data monitoring plays a crucial role.

- Producers are required to maintain detailed production and emissions records for at least five years.
- A standardised MRV (Monitoring, Reporting, Verification)
 framework guides this process, enhancing transparency and enabling traceability.
- Certificates are issued in multiples of 100 kg of hydrogen and include detailed information on emission intensity and production attributes.

Question: What are the key criteria and international standards involved in the certification of green hydrogen, and how do they impact global trade and sustainability goals?"

[UPSC 2023] About green hydrogen, consider the following statements:

- 1. It can be used directly as a fuel for internal combustion.
- 2. It can be blended with natural gas and used as fuel for heat or power generation.
- 3. It can be used in the hydrogen fuel cell to run vehicles.



How many of the above statements are correct?

- (a) Only one,
- (b) Only two,
- (c) All three,
- (d) None

All three statements are correct regarding the uses of green hydrogen.

 Green hydrogen can be used directly in internal combustion engines, blended with natural gas for heat and power generation, and utilised in hydrogen fuel cells to power vehicles.

Explanation:

- Statement 1: While less efficient than other applications, green hydrogen can be used in internal combustion engines.
- **Statement 2:** Green hydrogen can be blended with natural gas to serve as a fuel source for heat or power generation.
- Statement 3: The primary use of green hydrogen is in fuel cells, where its chemical energy is converted into electricity to power vehicles.









Rishikesh-Karnaprayag Railway Tunnel

Tunnel No. 8 (T-8) is set to become India's longest rail transportation tunnel at 14.57 km, surpassing the current longest, T-50 on the Udhampur-Srinagar-Baramulla Railway.



About Rishikesh-Karnaprayag Tunnel T-8 T-8 is a twin tunnel situated on the Devprayag–Janasu stretch of the 125-km Rishikesh–Karnaprayag Broad Gauge Rail Link Project, in the state of Uttarakhand. The project is being implemented by Rail Vikas Nigam Limited (RVNL), a Navratna PSU under the Ministry of Railways, and executed by Larsen & Toubro (L&T). Over 83% of the 125-km alignment—about 104 km—comprises tunnels, making it one of the most underground-intensive rail projects in India.

 The rail line will connect Rishikesh to Karnaprayag, cutting travel time from 7 hours to just 2 hours, enhancing connectivity across five districts: Dehradun, Tehri Garhwal, Pauri Garhwal, Rudraprayag, and Chamoli.



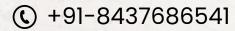
Technological Highlights

- Tunnel Boring Machines (TBMS)
 were used for the first time in the
 Himalayan rail projects to
 excavate 10.4 km of T-8.
- These 2200-tonne machines were imported from Germany, transported via 17 shipments, and assembled on site.
- The diameter of the TBM used for T-8 was 9.1 metres, larger than the 6-metre TBMS used in the Delhi Metro.
- The New Austrian Tunnelling Method (NATM) was used to excavate the remaining 4.11 km of the tunnel, especially in nonuniform geological zones.

Three advanced technologies were deployed for safety and precision:

- Tunnel Seismic Prediction (TSP) to detect geological faults.
- Torque Box for multidirectional boring capability.
- Void Measurement to detect and fill gaps behind tunnel linings.









Question:Consider the following statements regarding Tunnel No. 8 (T-8) of the Rishikesh-Karnaprayag Railway Line:

T-8 is the first railway tunnel in India to use Tunnel Boring Machines (TBMS) in the Himalayan region.

- 1. The TBMS used for T-8 had a larger diameter than those used in metro projects like the Delhi Metro.
- 2.Over 80% of the entire Rishikesh– Karnaprayag alignment comprises underground tunnels.
- 3. Tunnel Seismic Prediction (TSP) was used primarily to reinforce tunnel linings post-construction.

4.

Which of the above statements is/are correct?

A. 1 and 2 only
B. 1, 2, and 3 only
C. 1, 3, and 4 only
D. All of the above
Answer: B. 1, 2, and 3 only

Explanation:

- Statement 1 is correct: TBMS was used for the first time in a Himalayan railway project.
- Statement 2 is correct: The TBMS used had a 9.1 m diameter, larger than the 6 m ones used in the Delhi Metro.
- Statement 3 is correct: 83% of the 125-km alignment (~104 km) consists of tunnels.
- Statement 4 is incorrect: Tunnel Seismic Prediction (TSP) was used to detect geological faults, not for post-construction reinforcement.

Question: Discuss the engineering, logistical, and technological challenges involved in constructing such a tunnel in the Himalayan region. How do innovations like Tunnel Boring Machines (TBMS) and Tunnel Seismic Prediction (TSP) contribute to ensuring efficiency and safety in such high-risk projects?"





Red-Crowned Roofed Turtle

- The red-crowned roofed turtle has returned to the **Ganga River** after nearly 30 years of absence.
- The Red-Crowned Roofed Turtle (Batagur kachuga) is one of the most endangered freshwater turtle species in the world.
- It is native to South Asia, particularly India, Bangladesh, and Nepal.
- Historically found in deep, flowing rivers with sandbar nesting sites, it now survives only in the Chambal River, with fewer than 300 individuals remaining.
- This species plays a crucial role in maintaining river ecosystem balance by controlling aquatic vegetation and contributing to nutrient cycling.
- Under the Namami Gange Mission and Turtle Survival Alliance India (TSAFI) project, 20 turtles (10 males, 10 females) were released into the Ganga River at Haiderpur Wetland and Hastinapur Wildlife Sanctuary.

Threats:

- The species is highly susceptible to major hydrological projects and their impacts on river flow dynamics and nesting beaches, and water pollution.
- Since human activities on and along the river are disturbing, the entanglement in fishing nets has led to a significant impact on subpopulations.



- Degradation of habitat due to pollution and large-scale development activities like water extraction for human consumption and irrigation and irregular flow from the upstream dams and reservoirs are the main threats to these species.
- Sand mining and growing of seasonal crops along Ganga River are majorly affecting the sandbars along the river that are used by the species for nesting.
- Overharvesting the animal for illegal consumption and illegal international trade are other reasons for its extinction threat.
- Over 11,000 tortoises and freshwater turtles have been seized in India from 2009-2019, found a study by TRAFFIC, a global NGO working on trade in wild animals and plants and their conservation.





Red-Crowned Roofed Turtle Conservation Status

- IUCN: Critically Endangered
- Wild Life (Protection) Act of 1972: Schedule I
- CITES: Appendix II

Conservation:

Protected Areas and Sanctuaries:

 The National Chambal Sanctuary (across Madhya Pradesh, Rajasthan, and Uttar Pradesh) provides a protected riverine habitat.

Captive Breeding Programs:

- Organizations like the Madras
 Crocodile Bank Trust and Turtle
 Survival Alliance (TSA) have
 established captive breeding and
 assurance colonies.
- Hatchlings are reared in controlled environments and later released into the wild to boost wild populations.

Awareness and Community Involvement:

- Local communities are engaged in conservation through education and incentives.
- Sustainable livelihood programs are introduced to reduce dependence on riverine resources.

Scientific Monitoring and Research:

 Satellite telemetry and tagging programs help track movements and understand habitat use.

Question: Why is the Red-Crowned Roofed Turtle considered critically endangered, and what conservation efforts are being made to protect its habitat and population?

[UPSC 2017] In India, if a species of tortoise is declared protected under Schedule I of the Wildlife (Protection) Act, 1972, what does it imply?

- (a) It enjoys the same level of protection as the tiger.
- (b) It no longer exists in the wild, a few individuals are under captive protection, and it is impossible to prevent its extinction.
- (c) It is endemic to a particular region of India.
- (d) Both (b) and (c) stated above are correct in this context.





PM Inaugurates Vizhinjam International Seaport

 The Prime Minister has formally commissioned India's first deepsea transhipment port at Vizhinjam in Kerala.



About Vizhinjam Port

- Vizhinjam Port is India's first deepsea transhipment port located near Thiruvananthapuram. Developed under a Public-Private Partnership (PPP) model, the port cost ₹8,900 crore to build.
- It is operated by Adani Vizhinjam Port Pvt. Ltd., with a 61.5% stake held by Kerala's government and 9.6% by the Central government.
- Commercial operations began in December 2024, following a trial run in July 2024.
- The port has handled 285 ships and processed 5.48 lakh TEUS since its operational launch.
 Positioned just 10 nautical miles from a major international shipping route, it provides quick access to global trade lanes.

Features of the Port:

- It is India's first semi-automated port, utilising Al-powered control rooms and the Indigenous Vessel Traffic Management System (VTMS).
- Its deep natural draft (up to 24 meters) allows it to accommodate Ultra Large Container Vessels.

Question: Considering the strategic location, ownership structure, and operational capabilities of the Vizhinjam International Seaport, critically evaluate how it can alter India's position in global maritime trade, particularly in comparison to established transhipment hubs such as Colombo and Singapore. Additionally, assess the potential economic and geopolitical implications of this development for India and the broader Indian Ocean region.

[UPSC 2023] Consider the following pairs:

- 1. Kamarajar Port- First major port in India registered as a company
- 2. Mundra Port –The Largest privately owned port in India
- 3. Visakhapatnam- The Largest container port in India
- (a) Only one pair
- (b) Only two pairs
- (c) All three pairs
- (d) None of the pairs

Answer: B









Explanation

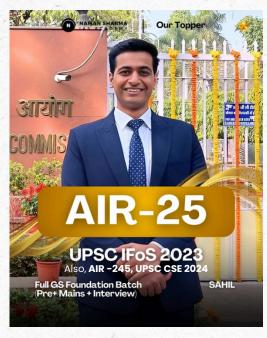
- Pair 1 is correct: Kamarajar Port, located on the Coromandel Coast about 24 km north of Chennai Port, Chennai, it is the 12th major port of India, and the first port in India which is a public company.
- The Kamarajar Port is the only corporatised major port and is registered as a company. Today, the landlord port is the dominant port model in larger and medium-sized ports.
- Pair 2 is correct: Mundra port is the largest private port in India.
- The port of Mundra is located on the north shores of the Gulf of Kutch near Mundra, Kutch district, in the state of Gujarat. Mundra is a major hub for containers and bulk cargo. It is run by Adani Ports and SEZ Limited (APSEZ) and began operations in 2001.
- Mundra Airport is undergoing major developments to convert it into an international airport for air cargo.
- Pair 3 is incorrect: Jawaharlal Nehru Port Trust – Nhava Sheva (JNPT) is the largest container port in India and one of the most essential sub-continental harbours on the Western coast.



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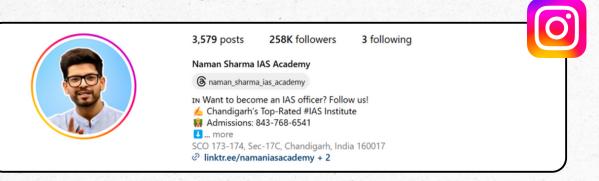
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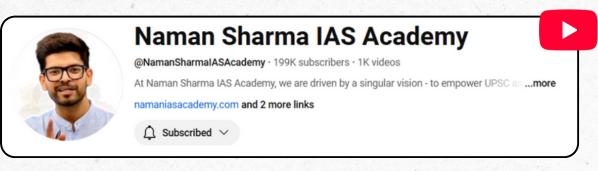






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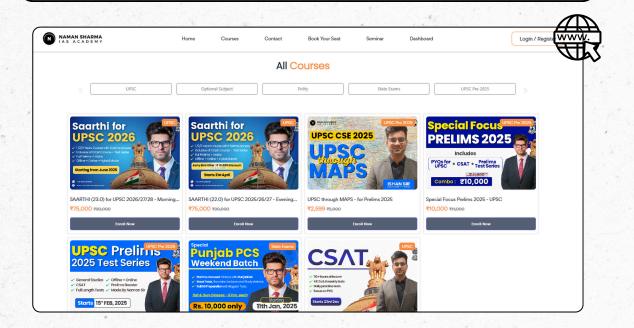






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