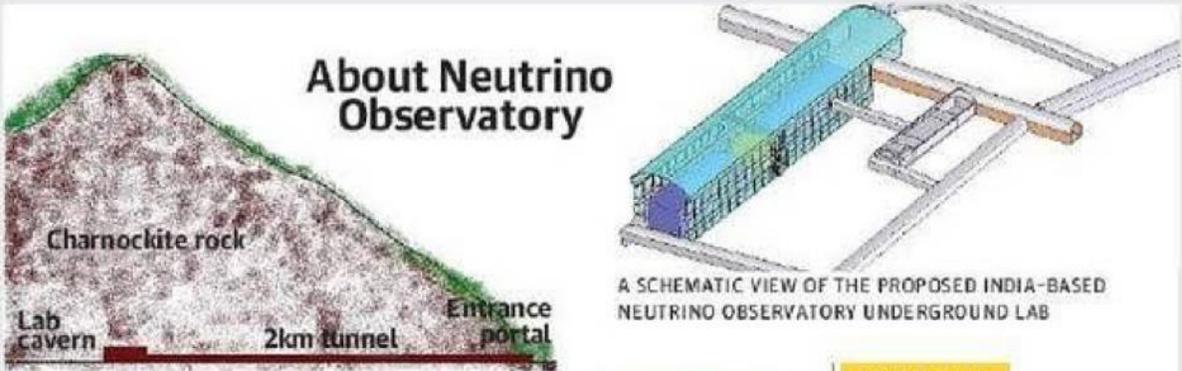


# 1. Indian Neutrino Observatory Project

**Topic: Science and Technology**



**About Neutrino Observatory**

Charnockite rock  
 Lab cavern      2km tunnel      Entrance portal

A SCHEMATIC VIEW OF THE PROPOSED INDIA-BASED NEUTRINO OBSERVATORY UNDERGROUND LAB

Where	Why	Neutrino	Highlights
At Pottipuram village in Theni district, on the Tamil Nadu-Kerala border	The initial goal of India-based Neutrino Observatory (INO) is to study neutrinos	Neutrinos are the smallest particles that form the universe	Two underground laboratory caverns with a rock cover of over 1000 metres; access tunnel of 2 km length

Where else	Underground	Underwater
	SNO, Canada; Kamioka, Japan; Gran Sasso, Italy	Amundsen - Scott South Pole Station, Antarctica; Antares - under Mediterranean sea off the coast of Toulon, France

SOURCE: INO WEBSITE

**In News:** The Tamil Nadu government has approached the Supreme Court disallowing the construction of the proposed Indian Neutrino Observatory in Theni district of Tamilnadu.

## More on the Topic:

- Tamil Nadu argued that the proposed particle physics project will affect local biodiversity and tiger species at the Periyar Tiger Reserve and the Mathikettan Shola National Park in the Western Ghats.
- The Indian Neutrino Observatory (INO) is a **proposed particle physics research mega project**. The objective of the project was to study neutrinos in a 1,200-metre deep cave.

## About Neutrinos:

- A neutrino is a **fundamental elementary particle**, and atmospheric neutrinos can be studied when solar radiation hits the earth's atmosphere.
- They are **very hard to detect** as they hardly interact with other forms of matter due to their lack of electrical charge.
- However, they seem to play **an important role in the universe of elementary physics**, which physicists have been trying to understand for a few decades now.
- They are produced in **high-energy processes such as within stars and in supernovae**. On earth, they are produced by **particle accelerators and nuclear power plants**.

- Neutrino detectors are **often built underground to isolate them from cosmic rays** from space and any other sources of background radiation.
- Because **neutrinos are so small, they barely interact with matter**, passing through most atoms, and thus most matter, without interaction.
- So far, neutrino physics has been mostly limited to outer space sources, observing neutrinos from farther-away stars and galaxies.
- There are about 20 or so neutrino detectors, telescopes, and experiments around the world.

Source: Indian Express

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## 2. Green Hydrogen Green Ammonia Policy

Topic: Environment and Ecology



**In News:** The Central Government has notified the green hydrogen and green ammonia policy aimed at boosting the domestic production of green hydrogen to 5 million tonnes by 2030 and making India an export hub for the clean fuel.

### More on the Topic:

- The new policy offers **25 years of free power transmission** for any new renewable energy plants set up to supply power for green hydrogen production before July 2025.
- The move is likely going to make it **more economical for key users of hydrogen and ammonia such as the oil refining, fertiliser and steel sectors** to produce green hydrogen for their own use.
- These sectors currently use **grey hydrogen or grey ammonia** produced using natural gas or naphtha.
- The government is set to provide **a single portal for all clearances** required for setting up green hydrogen production as well as a facility for producers to bank any surplus renewable energy generated with discoms for upto 30 days and use it as required.

- The power ministry has also said that energy plants set up to produce green hydrogen/ammonia would be given **connectivity to the grid on a priority basis**.
- **Power distribution companies may also procure renewable energy to supply green hydrogen** producers but will be required to do so at a concessional rate.
- Such procurement would also **count towards a state's Renewable Purchase Obligation (RPO)** under which it is required to procure a certain proportion of its requirements from renewable energy sources.
- **Port authorities will also provide land at applicable charges** to green hydrogen and green ammonia producers to set up bunkers near ports for storage prior to export.
- The government is set to come out with mandates requiring that the oil refining, fertiliser and steel sectors procure green hydrogen and green ammonia for a **certain proportion of their requirements**.

#### About Green Hydrogen and Green Ammonia:

- Green hydrogen is **hydrogen gas produced through electrolysis of water**. It is an energy intensive process for splitting water into hydrogen and oxygen using renewable power to achieve this.
- Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free

Source: Indian Express

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### 3. Japanese Encephalitis

Topic: Health



**In News:** The National Institute of Animal Biotechnology (NIAB), Hyderabad has developed an immunosensor to detect Non-Structural 1 (NS1) secretory protein which is a suitable biomarker for Japanese Encephalitis Virus (JEV) found circulating in the blood.

**More on the Topic:**

- Detection of the NS1 instead of antibody has an added advantage since the antigen is present from day 1 of the infection and hence facilitates early detection. On the other hand, antibodies appear only after Day 4/5 of the infection.
- The disease caused by a flavivirus. The virus affects the membranes around the brain.
- Japanese encephalitis virus (JEV) is also a major cause of **Acute Encephalitis Syndrome (AES) in India.**
- The disease is transmitted to humans through infected **Culex mosquitos' species.**
- There is no antiviral treatment for patients with JE. Treatment, available, is supportive to relieve symptoms and stabilise the patient.
- Safe and effective JE vaccines are available to prevent the disease.
- JE vaccination is also included under the Universal Immunisation Program of the Government of India.

Source: Indian Express

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## 4. Rashtriya Uchchar Shiksha Abhiyan (RUSA)

Topic: International Relations



Rashtriya  
Uchchar  
Shiksha  
Abhiyan

**In News:** The Ministry of Education has approved the scheme of Rashtriya Uchchar Shiksha Abhiyan (RUSA) for continuation till 2026.

**More on the Topic:**

- RUSA is a **Centrally Sponsored Scheme (CSS)** for funding the state government universities and colleges to achieve the aims of equity, access and excellence.
- The new phase of RUSA targets to reach out the unserved, underserved areas, remote and rural areas, difficult geographies, aspirational districts, tier-2 cities, areas with low GER, to benefit the most disadvantaged areas and SEDGs (Socio-Economically Disadvantaged Groups).
- Under the new phase of the scheme, state governments will be supported for **gender inclusion, equity initiatives, ICT, enhancing employability through vocationalisation and skill upgradation.**

**Objectives:**

- Improve the **overall quality of state institutions** by conforming to the prescribed norms and standards.
- **Adoption of accreditation** (certification of competency) as a mandatory quality assurance framework.
- **Promoting autonomy** in state universities and improving governance in institutions.
- Ensure **reforms in the affiliation, academic and examination system**.
- Ensure **adequate availability of quality faculty** in all higher educational institutions and ensure capacity building at all levels of employment.
- Create an enabling atmosphere for **research** in the higher education system.
- **Correct regional imbalances** in access to higher education by setting up institutions in unserved and underserved areas.
- **Improve equity** in higher education by providing adequate opportunities to the disadvantaged.

Source: The Hindu

## 5. Nepal will be the first foreign country to adopt India's UPI system

**Topic: Indian Economy**



**In News:** The National Payments Corporation of India (NPCI) announced that the neighboring country of Nepal will be the first foreign country to adopt India's UPI system.

**More on the Topic:**

- Unified Payments Interface (UPI) is an **advanced version of Immediate Payment Service (IMPS)- round-the-clock funds transfer service** to make cashless payments faster, easier and smoother.
- UPI is a system that powers **multiple bank accounts into a single mobile application** (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.

- UPI is **currently the biggest among the National Payments Corporation of India (NPCI)** operated systems including National Automated Clearing House (NACH), Immediate Payment Service (IMPS), Aadhaar enabled Payment System (AePS), Bharat Bill Payment System (BBPS), RuPay etc.
- The top UPI apps today include PhonePe, Paytm, Google Pay, Amazon Pay and BHIM, the latter being the Government offering.
- As part of an agreement, **India's UPI will be linked to Singapore's PayNow.**
- NPCI launched UPI with 21 member banks in 2016.

#### About NPCI:

- NPCI, an umbrella organisation for operating retail payments and settlement systems in India, is an **initiative of Reserve Bank of India (RBI) and Indian Banks' Association (IBA)** under the provisions of the Payment and Settlement Systems Act, 2007.
- It is a **"Not for Profit" Company** with an intention to provide infrastructure to the entire Banking system in India for physical as well as electronic payment and settlement systems.

Source: PIB

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## 6. Jhalkari Bai

Topic: Modern Indian History



In News: Jhalkari Bhai was mentioned in comic book released by GOI.

#### More on the Topic:

- She was a woman soldier who played an important role in the Indian Rebellion of 1857.
- At the height of the Siege of Jhansi, she disguised herself as the queen and fought on her behalf, on the front, allowing the queen to escape safely out of the fort.

Source: Hindu

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#### MCQs:

1. Which of the following statement/s is/are true?

1 Green Hydrogen is produced by splitting water into hydrogen and oxygen using an electrolyzer powered by renewable energy sources such as wind and solar.



**2. Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free.**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**Ans c**

**2. Which of the following are tributaries of the Ganga river?**

- (a) Harangi, Hemavati, Kabini**
- (b) Ghataprabha, the Malaprabha, the Bhima**
- (c) Pravara, the Purna, the Manjra**
- (d) Gomti, Son, Gandak**

**Ans: d**

**3. PM KUSUM Scheme is associated with?**

- (a) Women Empowerment
- (b) Stressed Asset
- (c) Renewable energy
- (d) LPG Delivery

**Ans: c**

**4. Which of the following statement/s are true?**

- 1. A neutrino is a fundamental elementary particle.**
- 2. They are produced in high-energy processes such as within stars and in supernovae.**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2



(d) Neither 1 nor 2

**Ans c**

**5. Seshachalam biosphere reserve is located at?**

(a) Andhra Pradesh

(b) Tamil Nadu

(c) Kerala

(d) Telangana

**Ans: a**