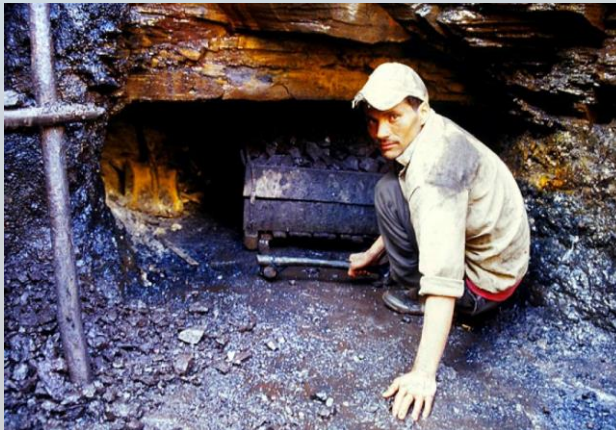
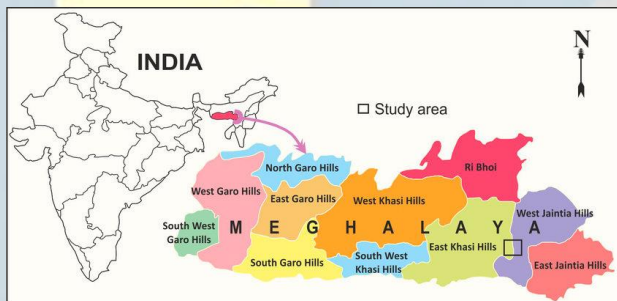


Rat hole mining

- A rat-hole mine is made by digging pits ranging from 5 to 100 meters into the ground to reach the coal seam.
- Thereafter, tunnels are made sideways into the seam to extract the coal.
- Coal seams are reached by excavating the side edge of the hill slopes after which, coal is extracted through a horizontal tunnel.



- These rat-hole mines are spread throughout Meghalaya, but are mostly concentrated in the Jaintia Hills, the South Garo Hills around the towns of Baghamara and Nangalbibra, and the area around

Nongjri and Shallang in the West Khasi Hills.

- On April 17, 2014, the National Green Tribunal (NGT) banned illegal rat-hole mining after the All Dimas Students Union and the Dima Hasao District Committee filed a petition that highlighted the unscientific and unregulated rat-hole coal mining operations in the Jaintia Hills.
- However, following protests by the mining lobby, the tribunal allowed the transport of already-mined coal

Moon sniper

- The country became the fifth to put a spacecraft on the moon when its so-called “Moon Sniper” lander touched down on the lunar surface.
- The Japan Aerospace Exploration Agency [JAXA] said it had received all data about the landing of its Smart Lander for Investigating Moon (SLIM) probe.
- The mission aimed to land within 100 meters (328 feet) of its target, bettering the conventional accuracy figure of several kilometers.
- The target was a crater where the moon’s mantle, a deep inner layer, is believed to be exposed on the surface.

- JAXA also published its first colour images from the mission depicting the aircraft sitting at a slight angle on the moon's rocky grey surface, with rising slopes in the distance.



- JAXA said saying SLIM's solar panels have been unable to generate electricity likely because they were angled wrong, expressing hope that a change in the sunlight's direction could power it up again.
- Its probe is part of several new lunar missions launched by governments and private companies, five decades' years after the first human moon landing.
- Japan has been expanding its [space activities](#), even forging partnerships with the US to address China's burgeoning military and technological influence.
- The country is an active participant in NASA's Artemis program and aims to send one of its astronauts to the moon.

- JAXA has faced multiple setbacks, including a launch failure in March of the new flagship rocket H3 that was meant to be competitive against others like SpaceX.

• **Viksit Bharat@2047**

- Viksit Bharat@2047 represents the government of India's ambitious vision to transform the nation into a developed entity by the centenary of its independence in 2047.
- Encompassing diverse facets of development such as economic prosperity, social advancement, environmental sustainability, and effective governance.
- This vision underscores the critical juncture at which India currently stands.
- Realizing this vision demands unwavering dedication, a firm belief in India's destiny, and a profound recognition of the vast potential talent and capabilities of its people, particularly the youth.
- With the largest demographic share, the youth are positioned as the vanguard in leading India towards recessive Bharat by 2047.
- In response to the nation's call, the Prime Minister has extended an invitation for the youth to actively engage in a transformative agenda

through a youth movement called “Ideas from Youth for Viksit Bharat@2047”.

- To encourage widespread student participation in providing suggestions for the vision of Viksit Bharat@2047, which aims to maximize engagement on the Viksit Bharat web page.

• The Hindu

Nitrogen hypoxia

What is nitrogen hypoxia?

- Prison officials strapped a mask to Smith's face and administered the pure nitrogen gas.
- The gas itself is not poisonous - nitrogen makes up more than three-quarters of the earth's atmosphere.
- But in pure concentrated form, breathing in the gas chokes off oxygen to the brain, a process called nitrogen hypoxia.
- The use of nitrogen gas in executions has been approved by three states, including Alabama in 2018, and has withstood various legal challenges since.

The Hindu

Liquefied natural gas

- What is liquefied natural gas?

- Liquefied natural gas (LNG) is natural gas that has been reduced to a liquid state, through a process of cooling.

- Natural gas is a ‘traditional’ source of energy that is already used for a range of functions, from heating our homes and businesses to cooking and transport.

How is LNG made?

- LNG is created by transforming natural gas into a liquid state, by cooling it to -161°C (-259°F).
- The process reduces it to 1/600th of its original un-liquified volume and to half the weight of water.

Why is LNG cleaner than other natural gases?

- LNG produces 40% less carbon dioxide (CO₂) than coal and 30% less than oil, which makes it the cleanest of the fossil fuels.
- It does not emit soot, dust, or particulates and produces insignificant amounts of sulphur dioxide, mercury, and other compounds considered harmful to the earth's atmosphere.

- Clear, odourless, and colourless, LNG is typically 85-95% methane, which contains less carbon than other forms of fossil fuels.

- It also contains tiny amounts of ethane, propane, butane and nitrogen; the exact composition varying depending on its source and processing.
- **Why is LNG important for the transition to net zero?**
- LNG helps with what's known as the 'energy trilemma', which refers to finding a balance between three key requirements in our energy choices: we want affordable energy; we want our energy supply to be secure; and, we want to drive down our carbon emissions to net zero.

LNG as part of our energy future

- Natural gas may be a fossil fuel, but it's making the transition to green energy possible – successfully helping renewables to become the UK's largest source of power.
- And LNG has other uses in the race to net zero. It can act as the 'feedstock' for low-carbon hydrogen a net zero process as it captures the carbon emissions during the manufacturing process meaning it has the potential to become part of a [new hydrogen economy](#).
- Comprehensive defence industrial roadmap that was discussed aims to foster collaboration in cutting-edge technologies, including robotics, artificial intelligence (AI), autonomous vehicles, platforms, and cyber defence.
- The India-France defence roadmap's primary focus is to identify opportunities and collaboration in the defense-industrial sector, particularly in high-tech fields such as robotics, AI, and cyber defence.
- India and France have successfully agreed upon a robust defence-industrial roadmap, reflecting a shared commitment to enhancing strategic cooperation.
- Notably, Tata and Airbus Helicopters have entered into an industrial partnership for the production of H125 helicopters, fostering collaboration in the defense sector.
- Discussions between Prime Minister Modi and President Macron surrounded potential disruptions and actual developments in the maritime domain, with a specific reference to the Red Sea.
- An MoU was sealed between New Space India Ltd and France's Arianespace, signifying cooperation in satellite launches and advancing space exploration initiatives.

The Hindu

India-France defense ties

- The comprehensive industrial roadmap extends beyond the defence sector, with agreements spanning science and technology, healthcare, education, training, research, public administration, and sustainable agriculture.
- Celebrating the spirit of innovation, 2026 has been designated as the "India France Year of Innovation".
- Other announcements include the introduction of the Young Professional Scheme, facilitating the exchange of individuals between 18-35 years of age, and the extension of visa validity to five years for Schengen visas for Indian students pursuing master's degrees in France.

[The Hindu](#)



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