## Topics - MINDS MAPS included (Daily current affairs

- ) 19th November **2024** 
  - Chennai to Vladivostok Corridor, IMEC,
- Sagarmanthan: The Great Oceans Dialogue'
- GSAT -20 Launched BY SPACE X
- Is net-zero equitable?
- Constitutional Crisis in Manipur
- The PM Internship scheme
- Biosensor
- Tree and Temperature
- Why Chimney shaped vents on the DEAD SEA
- MAINS





By saurabh Pandey



## **Target Mains -2025/26 -**

Q Marine route will shape world trade but not without cost .Discuss

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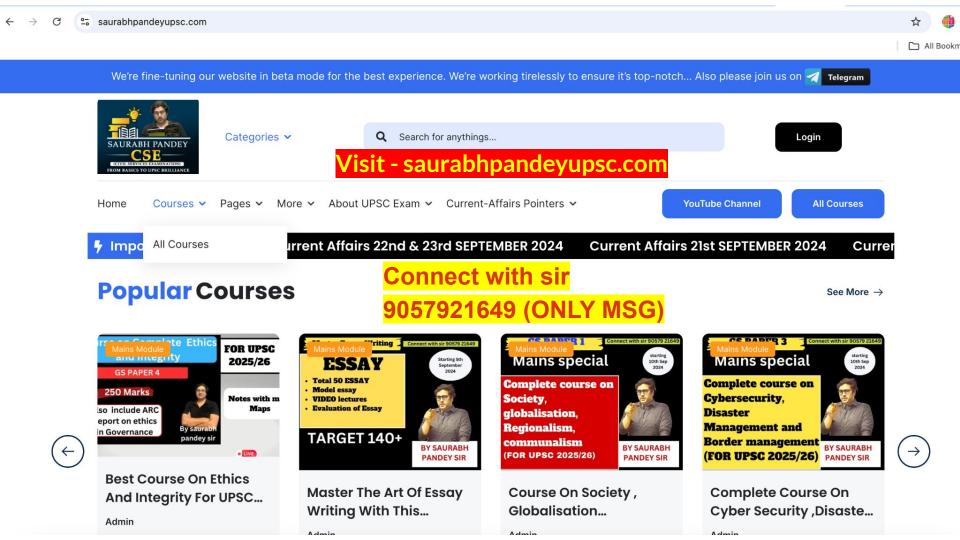
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## 50 PER OFF TODAY



# Chennai-Vladivostok maritime corridor is operational: Sonowal



#### Dinakar Peri NEW DELHI

The Chennai-Vladivostok eastern maritime corridor has become operational and is carrying oil, food, and machines, Minister for Ports, Shipping, and Waterways Sarbananda Sonowal said on Monday.

He said India and Greece would work together on the India-Middle East-Europe Economic Corridor (IMEEC) announced last year. India aims to be the best maritime nation in the world in all indices, Mr. Sonowal said, outlining a 'maritime vision 2047'.

"Out of the 139 marine nations across the world, we want to be on the top in all the verticals, whether it is port operations, cargo handling, ship ownership, ship building, ship repair, recycling, technology, and legislative reforms," Mr. Sonowal said, speaking to the media on the sidelines of



Sarbananda Sonowal said out of the 139 marine nations across the world, India wants to be on the top in all the verticals. THE HINDU

the inaugural edition of 'Sagarmanthan: The Great Oceans Dialogue' thought leadership summit, organised by the Ministry in partnership with Observer Research Foundation. He also held bilateral talks with Christos Stylianides, Greece's Minister of Maritime Affairs and Insular Policy.

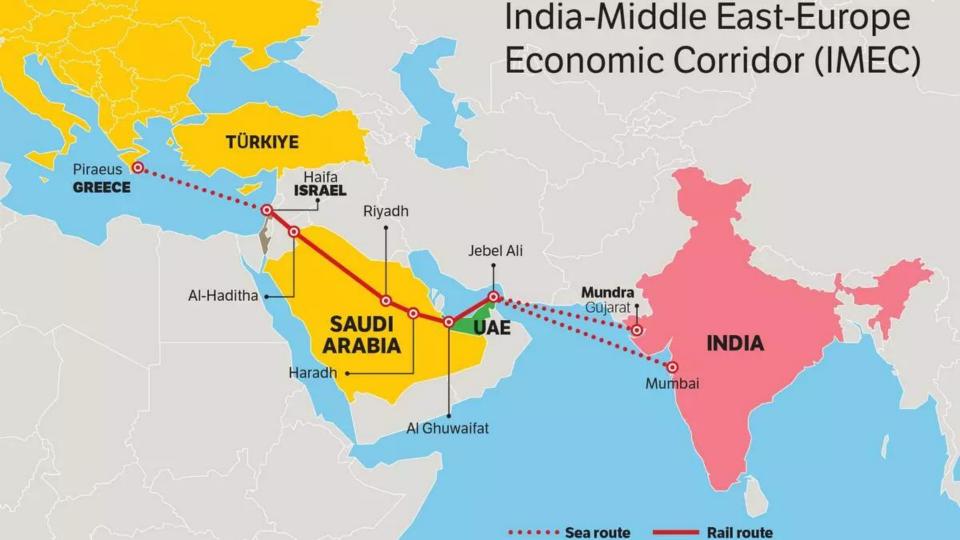
The two-day dialogue has over 1,700 participants, including over 215 delegates from 60 countries, officials said.

Officials said the Chennai-Vladivostok corridor became operational at the end of last year. The government had stated earlier that the corridor would result in significant reduction in the time required to transport cargo between India and Far East Russia – by up to 16 days; from 40 to 24 days; and a significant reduction of the distance by up to 40%.

"The IMEEC that was

announced during the G20 summit - it goes from India to UAE, Saudi Arabia, Jordan, Israel, then three European countries, Italy, France and Greece, Ultimately this line will also have a railway line, [and] sea route totally over 4,800 km. India and Greece will work together," Mr. Sonowal said in the media interaction. On the Chennai-Vladivostok maritime corridor, he said it had become operational and, along with the port in the Bay of Bengal, Paradip and Vizag also have connectivity. "We are getting crude, food, and machines. We are also sending... It is operating smoothly," he said.

His remarks come in the backdrop of apprehensions on the progress of the IMEEC, given the volatile situation in West Asia in the backdrop of the attacks on Israel, and the continuing offensive in Gaza and Lebanon.



## Corridor trajectory

The map shows the multiple routes being considered for the India-Middle East-EU Corridor. Indian ports on the west coast of India could be connected to five shortlisted ports in West Asia - Haifa Afghanistan Jordan Pakistan Ras Al-Khair Dammam Saudi Arabia Fujairah Mundra Haradh India **Ghweifat** Kandla Existing line Under construction line Missing line Mumbai Place name **Ports** Sea links

#### **India-Middle East-Europe Economic Corridor (IMEC)**

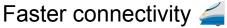


#### **Overview**

- 1. IMEC is a key initiative for enhancing maritime security and facilitating faster movement of goods between Europe and Asia.
- 2. Launched during India's G20 presidency, it aims to integrate India, Europe, and the Middle East through key nations like UAE, Saudi Arabia, Jordan, Israel, and the European Union.

#### 3. Key Benefits:

Lower logistics costs 💰



Secure movement of goods 🔐

Enhanced cooperation between nations 🤝

#### **Economic Growth & Initiatives**

PLI Scheme: Boosting India's manufacturing growth W

Ease of Doing Business (EoDB): Facilitating trade through FTAs and economic partnerships (##)

Agri-value Chains: Promoting agricultural cooperation between India and Mediterranean countries



#### **India's Economic Potential:**

One of the fastest growing economies \*\*

Expected to become the 3rd largest economy soon \(\frac{Y}{2}\)



#### Focus Areas:

Renewable energy  $\rightarrow$ 

Manufacturing **\*\*** 

Maritime and blue economy

Digitization **I** 

Pharmaceuticals

Information Technology

Agriculture \*

Tourism 💥

#### **Shipping and Port Development**



Common interests in the shipping sector:

Shipbuilding 🕕



Cruise business



#### Port Capacity Development:

Doubled port capacity in the last decade 🎇

Plans to double capacity in the next 5 years 17

#### Collaborative Efforts:

Government Working Group on tourism with Mediterranean nations 😩





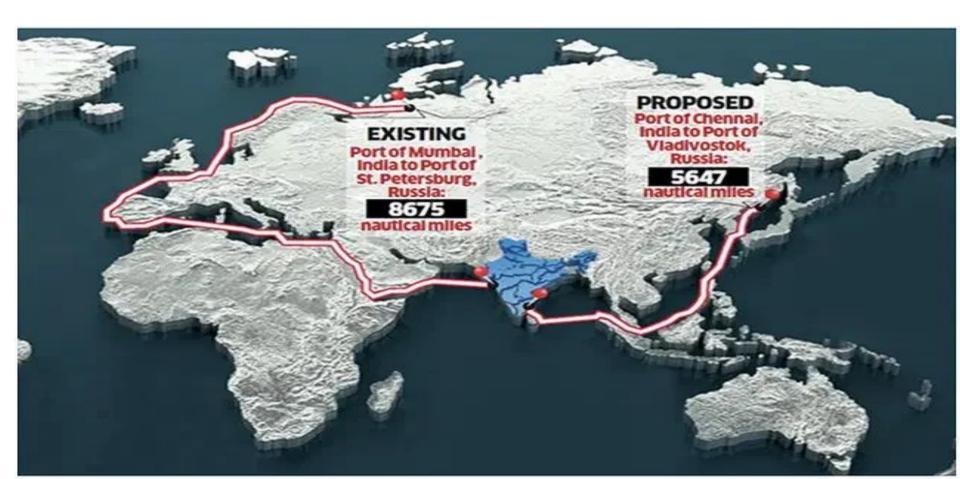


#### **Future Outlook**

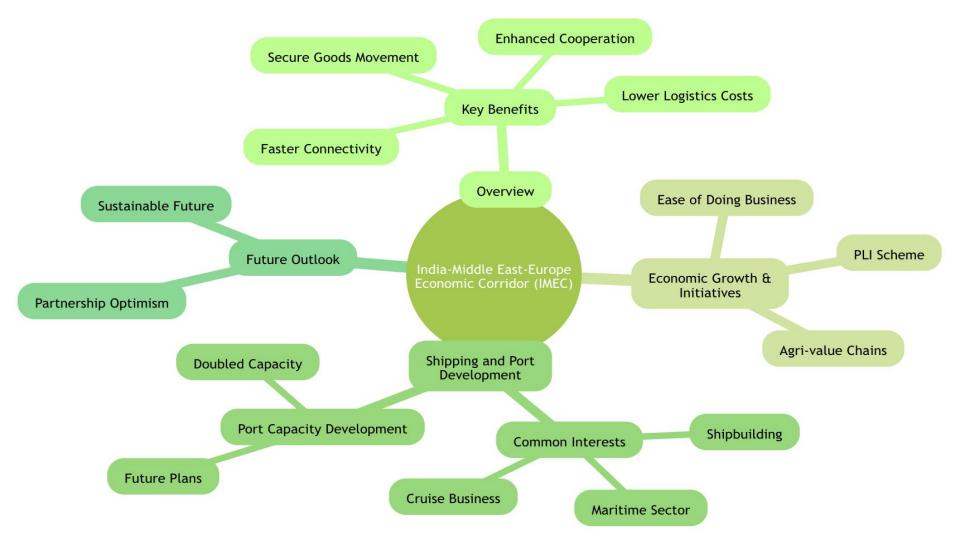
Optimism for the India-Mediterranean partnership 🤞 Aiming for a cleaner, sustainable, and inclusive future 🌱

## **Chennai to Vladivostok Corridor**









## Sagarmanthan: The Great Oceans Dialogue'



Event Details: The first edition of 'Sagarmanthan: The Great Oceans Dialogue' will be co-hosted by the Observer Research Foundation and MoPSW on 18-19 November 2024.

Global Ideas Arena: The event aims to position India as a hub for global maritime policy discussions, fostering debates among diverse stakeholders.

India's Economic Growth: India contributed approximately 16% to global growth in 2023 and is projected to become the third-largest global economy within three years.

Maritime Governance Role: As India's international influence grows, it has the opportunity and responsibility to enhance its role in maritime governance.



Focus Areas: The dialogue will cover critical topics such as the blue economy, maritime logistics, ports, shipping, critical minerals, and training standards.

Diverse Participation: The event will gather leaders, policymakers, scholars, and industry representatives from various backgrounds to foster inclusive discussions.

Goal of the Dialogue: The overarching aim is to establish a new, inclusive accord for ocean governance and collaboration.

Summary: The 'Sagarmanthan: The Great Oceans Dialogue' in November 2024 will position India as a key player in global maritime policy discussions, focusing on diverse stakeholders and critical maritime issues.





#### Topic → GSAT -20 Launched BY SPACE X

SAURABH PANDEY

CSE

BOOM BASICS TO LIFE RELIENCE

- GSAT-N2 is also known as GSAT-20.
- It is a communication satellite developed by the Indian Space Research Organisation (ISRO).
- The satellite is designed to enhance telecommunication services across India.
- GSAT-20 was launched to improve broadband connectivity and support various applications.
- It is part of India's efforts to expand its satellite communication capabilities.
- The satellite features advanced technology for better signal transmission.
- GSAT-20 plays a crucial role in supporting digital infrastructure in the country.

Summary: GSAT-N2, or GSAT-20, is an ISRO-developed communication satellite aimed at enhancing telecommunication services in India.

### How sustainable is India's path to net-zero with 45 years left?

Power demand in India could increase ten-fold by 2070. Meeting it entirely via renewable energy is possible if India's only priority is to expand renewable energy generation capacity, but it also has to maintain food and nutritional security, increase forest cover, and preserve biodiversity

Ramya Natarajan Kaveri Ashok

very year, climate action draws significant attention in the months leading up to the United Nations' annual meeting of the Conference of the Parties (COPs), But the outcome of the 2024 U.S. presidential election will likely have a greater impact on the planet's climate future than COP-29 itself, illustrating an important challenge in combating climate change: operationalising global cooperation towards a common cause even when national interests don't align with it.

For example, an economically developed country with sufficient resources per capita may not find it necessary to change course - whereas a populous and developing country like India will. A few COPs ago, India committed to achieving net-zero carbon emissions by 2070. Since then, it has implemented several policies while others are in the works to support this transition. It is widely acknowledged that this journey will not be without challenges. especially financial ones. However, other resource constraints such as land or water availability also matter, limiting the choices available for a sustainable long-term pathway for India.

#### Why net-zero at all?

With each passing day, climate change is becoming more evident. The scientific consensus is that to avoid devastating and irreversible consequences, the world must keep the global average annual surface temperature rise to within 1.5 °C above pre-industrial levels. The current increase is at least 1.1 °C over that in 1880.

The Sixth Assessment Report of the U.N. Intergovernmental Panel on Climate Change estimated that from 2020, the remaining (cumulative) global carbon budget for a 50-67% chance of limiting temperature rise to 1.5 °C is 400-500 billion tonnes (Gt) of CO2, Currently, annual global emissions are around 40

This means net global emissions must drop drastically to stay within the carbon budget. Several countries have announced net-zero targets, but we also really need a sharp decline in total emissions

Is net-zero equitable? The developed world, having caused the problem of climate change in the first place, is expected to lead this transition and reach net-zero emissions well before 2050, allowing more time for developing countries to balance their development goals with climate action. These

expectations aren't being met, however, Developed countries are also expected to help finance climate action, but this hasn't materialised at the required scale either. Developing countries, especially those that are small islands, are bearing more than their fair share of the brunt of

climate change. So overall, neither climate change nor climate action is currently equitable.



COP-29 is expected to build consensus on the level of financing required.

India's per-capita emissions are among the lowest in the world. However, according to the World Inequality Database, the per-capita emissions of the richest 10% are 20-times greater than that of the poorest 10% and in absolute terms almost half of the country's total, Climate change more severely affects the economically weaker sections.

India's size and diversity mean it's a country of countries, and some of them are more polluting than others vis-à-vis the climate. Importantly, India lacks the carrying capacity to support the developed world's lifestyle standards for its entire population. If it should, India will run into significant food shortage due to groundwater depletion by the 2040s, extreme heat stress in urban areas due to the ever-increasing vehicular pollution and AC use, irreversible biodiversity loss due to non-ideal land-use changes encroaching on habitats, etc.

India's lifestyle aspirations could easily become unsustainable in the long run, jeopardising our access to basic needs.

#### A new consumption corridor

In a scenario where consumption rises unchecked and India electrifies all end-use applications, the power demand could increase nine- to ten-fold by 2070. Meeting it entirely via renewable energy will require more than 5,500 GW of solar and 1,500 GW of wind, up from the current 70 GW and and 47 GW,

respectively This target is achievable if India's only priority is to expand renewable energy generation capacity. But if India is to maintain food and nutritional security, increase forest cover, and preserve biodiversity as well, these energy targets

In sum, India has a tough balancing act to pull off: availing good quality of life to a large share of its population (which has significant material and energy implications) while working towards its climate adaptation and mitigation goals

will become very challenging. By modelling land-use change dynamics over time, the authors have found going beyond 3,500 GW solar and 900 GW wind will demand considerable land trade-offs.

In sum, India has a tough balancing act to pull off: availing good quality of life to a large share of its population (which has significant material and energy implications) while working towards its climate adaptation and mitigation goals.

To this end, it is important to recognise the pitfalls of economic models. For example, the environmental Kuznets curve hypothesises that beyond a threshold, economic growth can be decoupled from carbon emissions. In reality, even the richest countries haven't achieved this decoupling (other than by shifting their emissions to poorer countries). This is why it is in our best interest to not aspire to achieve the lifestyle standards of the west.

Instead, we need to envisage a long-term strategy incorporating 'sufficiency consumption corridors', with a floor well suited to meeting our developmental goals and a ceiling of excess that will help avoid unsustainable growth. Equally, if not more, important are demand-side measures to help maintain this corridor of consumption

that will keep us on a sustainable Our power consumption here could increase six- or sevenfold by 2070.

#### Demand and supply measures

Some of these demand-side measures include the use of better construction materials and passive design elements to provide thermal comfort that doesn't require air-conditioning, energy-efficient appliances, public and/or non-motorised transport within urban areas and railways for intercity travel, local products to reduce the demand for long-haul freight mindful dietary choices, and alternative fuels in industries in addition to some

electrification. On the supply side as well, India needs to further decentralise energy production (including by the use of rooftop solar cells and of solar pumps for agriculture). Finally, it should continue to expand its nuclear power generation capacity to diversify its energy mix and to complement a grid becoming more dependent on intermittent energy sources. Nuclear power could also offer a precious low-carbon baseload energy and help the government effectively phase out the national economy's dependence on fossil fuels.

As the world trundles towards its net-zero and other climate-related targets the leeway for governments to miss some of them or postpone their achievement also shrinks. Of course some things are out of our control - for example who becomes the U.S. President - but the things that we can we must, before we

(Ramya Natarajan and Kaveri Ashok work on climate change mitigation at the Center for Study of Science, Technology and Policy (CSTEP), a research-based think tank.)

#### **Topic** → **Is net-zero equitable?**



Developed Countries' Responsibility: Developed nations are expected to lead the transition to net-zero emissions before 2050, but they are falling short in both action and financing.

Financial Support Lacking: There is a significant gap in the financial support that developed countries are supposed to provide for climate action in developing nations.

impact on Developing Countries: Developing countries, particularly small island nations, are disproportionately affected by climate change despite contributing less to the problem.

Inequality in Emissions: In India, the richest 10% emit 20 times more per capita than the poorest 10%, highlighting stark inequalities in emissions and climate impact.

Food Security Risks: India's potential to support developed lifestyle standards for its entire population is limited, risking food shortages and other environmental crises by the 2040s.

Urban Challenges: Increasing vehicular pollution and air conditioning use are leading to extreme heat stress in urban areas, exacerbating climate-related issues.

We Biodiversity Loss: Unsustainable land-use changes are causing irreversible biodiversity loss, threatening ecosystems and habitats.

#### A new consumption corridor



\*\* Power Demand Surge: India's power demand could increase 9-10 times by 2070 if consumption rises unchecked and all applications are electrified.

✓ Renewable Energy Targets: To meet this demand, India would need over 5,500 GW of solar and 1,500 GW of wind energy, a significant increase from current capacities of 70 GW and 47 GW, respectively.

P Land Trade-offs: Achieving energy targets beyond 3,500 GW solar and 900 GW wind will require considerable land trade-offs, impacting food security, forest cover, and biodiversity.

Balancing Act: India faces the challenge of providing a good quality of life while pursuing climate adaptation and mitigation goals.

Economic Models Pitfalls: The environmental Kuznets curve suggests economic growth can decouple from carbon emissions, but this has not been achieved by even the richest countries.

Noviding Unsustainable Growth: India should not aspire to Western lifestyle standards but instead focus on sustainable consumption strategies.

Sufficiency Consumption Corridors: A long-term strategy is needed that defines a sustainable floor and ceiling for consumption to meet developmental goals without promoting unsustainable growth.

## **Demand and supply measures**



The Demand-side measures: Emphasizes the use of better construction materials and passive design for thermal comfort without air-conditioning.

Transport solutions: Advocates for energy-efficient appliances and public/non-motorised transport in urban areas, along with railways for intercity travel.

Y Local products: Encourages the use of local products to minimize long-haul freight demand and promote mindful dietary choices.

→ Decentralized energy: Stresses the need for India to decentralize energy production through rooftop solar cells and solar pumps for agriculture.

Nuclear power expansion: Highlights the importance of expanding nuclear power generation to diversify the energy mix and reduce reliance on fossil fuels.

Climate targets urgency: Notes the shrinking leeway for governments to miss or postpone climate-related targets as the world moves towards net-zero goals.

Political factors: Acknowledges that while some factors, like political leadership, are beyond control, proactive measures must be taken where possible.

Summary: The text discusses various demand and supply measures for energy efficiency and climate action, emphasizing the need for better materials, transport solutions, local products, decentralized energy, and nuclear power expansion in India.

## Manipur as a case for imposing Article 356

he state of Manipur reflects a classic case of the failure of the constitutional machinery, necessitating invocation of Article 356 by the President of India. The President need not wait for the report from the Governor because, under this Article, the President can act if, "otherwise", satisfied that a situation has arisen in which the government of that State cannot be carried on in accordance with the provisions of the Constitution. In Manipur, the unprecedented and horrific violence that erupted in May 2023, continues unabated.

B.R. Ambedkar, defining this extraordinary provision to the Constituent Assembly, on August 3, 1949 said, "I think I can well begin by reminding the House that it has been agreed by the House, where we were considering the general principles of the Constitution, that the Constitution should provide some machinery for the breakdown of the Constitution..." He further said, "I think as a necessary consequence to the introduction of article 277-A, we must also give liberty to the President to act even when there is no report by the Governor and when the President has got certain facts within his knowledge on which he thinks, he ought to act in the fulfilment of his duty."

#### Why Manipur is proving to be different

The President of India, Droupadi Murmu, has proved that she is conscious and sensitive about her constitutional functions. And she has the power coupled with duty to act as soon as possible. No State in India has seen such continuing violence among the common people. Violence on account of insurgencies did take place in Nagaland and Mizoram a long time ago and terrorism continues unabated in Jammu and Kashmir

But Manipur is a different situation where the ordinary people are not only becoming victims of violence but are also being forced to indulge in violence to protect themselves.

It is important to refresh the nation with the lively debates on this Article in the Constituent Assembly proceedings of August 3-4, 1949. H.V. Kamath strongly opposed it, calling it as "A constitutional crime to empower the President to interfere", while Alladi Krishnaswami Ayyar defended saying, "In the first place, I would explain the reason why the Article has been put inf.,] making it the duty of the Union 'to maintain the Constitution'... if there is any unit ... any



#### **Dushyant Dave**

Senior Advocate and a former President of the Supreme Court Bar Association of India

It is shocking

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State continues

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difficulty with regard to the proper working of the Constitution, it would be the obvious duty of the Union government to intervene and set matters right..."

K. Santhanam stated, "Now, let us broadly analyse the circumstances in which these Articles can come into operation. There may be a physical breakdown of the Government in the State, as for instance, when there is widespread internal disturbance or external aggression or for some reason or other, law and order cannot be maintained. In that case, it is obvious that there is no provincial authority which can function and the only authority which can function is the Central Government, and in that contingency these articles are not only unobjectionable but absolutely essential and without it the whole thing will be in chaos."

Thakur Das Bhargava said, "May I point out that the situation is one in which the entire machinery has failed, and ordinary people do not enjoy the common liberties? Internal disturbance to peace and tranquillity are all covered by this."

Dr Ambedkar again rose on August 4, 1949 and responded, "...The expression 'failure of machinery' I find has been used in the Government of India Act, 1935. Everybody must be quite familiar therefore with its de facto and de jure meaning..." and that, "...If at all they are brought into operation, I hope the President, who is endowed with these powers, will take proper precautions before actually suspending the administration of the provinces." The Article was thus passed.

Article 355 obliges the Union to assist States to meet such challenges and one can assume that the Union government has indeed done so, though unsuccessfully.

#### Court's order

The Supreme Court of India in a Public Interest Litigation on May 8, 2023, passed an order merely recorded, "The Solicitor General states that as a consequence of the measures which have been adopted, no violence has been reported in the State during the course of the previous two days and the situation is gradually returning to normalcy." It laid stress on the point of "the need to preserve law and order and, in particular, to provide relief and rehabilitation" and observed that "utmost vigil should be maintained to ensure that there is no recurrence of violence".

The Court recorded assurance from the Union,
"The Solicitor General has assured the Court that

the concerns which have been placed on the record in the petition and in the additional affidavits which have been filed in the proceedings, shall be duly taken note of and such remedial steps as are required would be adopted on a proactive basis," But in July 2023 the Court, suo motu, took notice of the incident of May 4 where women were paraded naked by a mob. It observed, "The Court is deeply disturbed by the visuals which have appeared in the media since vesterday depicting the perpetration of sexual assault and violence on women in Manipur. What is portraved in the media would indicate gross constitutional violations and infractions of human rights. Using women as instruments for perpetrating violence is simply unacceptable in a constitutional democracy.

"This Court must be apprised of the steps which have been and shall be taken by the government to (i) hold the perpetrators accountable; and (ii) ensure that such incidents are not repeated."

#### Violence unabated

Between May 3 and November II, 2024, more than 250 people have been killed and over a lakh of people displaced from their homes in the ethnic violence. Hundreds of temples, churches, homes and other places have been destroyed. Even on November 9, a mother of three was raped and killed and 17 houses set on fire.

Clearly, the Supreme Court's into Inrec.
Clearly, the Supreme Court's intervention was slow and ineffective despite there having been 27 hearings. It is shocking that under the watchful eyes of the ultimate protector of fundamental rights, the mayhem continues, depriving the three million people of Manipur of fundamental rights and their lives, liberty, dignity, and peace.
Why have the top judges who were on the Bench been silent spectators? Does this not show that the Supreme Court is becoming weaker in recent

Sectarian violence in Manipur is a matter of concern for India. It is surprising and shocking that the government of Prime Minister Narendra Modi is not able to stop the carnage. Whatever may be its compulsions, it should have acted decisively a long time ago. The Prime Minister should have acted decisively to bring back peace, harmony, justice, relief and rehabilitation.

The situation demands the immediate intervention of the President. It is true that Article 356 has been more abused than used. But todav, its invocation will be lauded nationally.



## **Topic** →**Constitutional Crisis in Manipur**



m Constitutional Crisis: Manipur is experiencing a significant failure of constitutional machinery, leading to considerations for invoking Article 356 by the President of India.

Presidential Authority: The President holds the power to act independently of a Governor's report if convinced that the state's government is unable to function in accordance with the Constitution.

Ongoing Violence: Since May 2023, Manipur has been engulfed in unprecedented violence, compelling citizens to resort to self-defense.

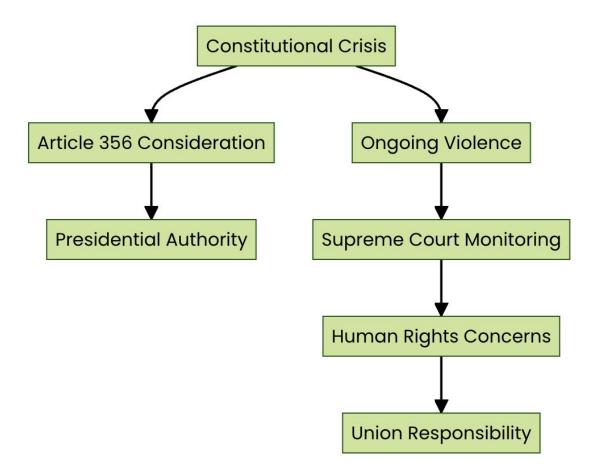
Historical Context: Discussions from the Constituent Assembly in 1949 revealed varied opinions on the necessity of presidential intervention in state governance.

m Supreme Court Involvement: The Supreme Court is actively monitoring the situation, stressing the importance of maintaining law and order and addressing human rights violations.

Human Rights Violations: The Court has expressed grave concern over incidents of sexual violence against women, demanding accountability and preventive measures.

Union Responsibility: Under Article 355, the Union is obligated to assist states in distress, though the effectiveness of such assistance in Manipur is debatable.

#### **Conceptual Overview:**



<u>\*</u> 🙈

[2] Call for Presidential Intervention: There is a demand for immediate intervention from the President, with a suggestion to invoke Article 356, despite its historical misuse.

? Judicial Accountability: Questions are raised about the silence of Supreme Court judges



## Around 6.5 lakh applications come in for PM's Internship Scheme pilot project

Ashna Butani NEW DELHI

As many as 6.5 lakh youth had applied for internships under the PM Internship Scheme in Top Companies (Scheme) pilot project as of Friday last, when the window closed for the 1.27 lakh opportunities initially being offered by Corporate India under the scheme,

The project is aimed at providing on-the-job training to one crore people over five years.

according to government

sources.

The number of applications does not equate to the number of individual applicants, clarified an official source, as every applicant can apply for five different internships that have been offered.

The scheme's pilot. learnings from which would be used to scale it up for a full-fledged rollout, has attracted internship offers from 280 major firms such as Tata Steel, ITC Limited, ICICI Bank, and the Mahindra Group.

The deadline for applications was extended from

November 10 to November 15 to provide youngsters more time to apply.

Unemployed youth between 21 and 24 years of age, who do not have a family member earning over ₹8 lakh per annum, are eligible for the scheme.

Companies that have signed up for the scheme would now begin the selection process. As per the original timeline, the selected interns are expected to begin their year-long tenure with companies on December 2.

Many youth who had re-

The number of applications do not equate with the total applicants, officials explained

gistered said they were hopeful of getting selected. while for a few it was a "back-up" option.

College professors said while students were enthusiastic, very few had applied as only those not currently enrolled in full-time programmes were eligible.

On October 3, the portal was launched for compa-

nies to register and opened for applicants on October 12 for profile creation.

On October 23, the applications for internships began officially. Applicants have been asked to keep an eve out on the portal, and via mail for updates.

"For those of us who are looking for a future in academics or preparing for civil service examinations, this scheme is ideal," said Kratika Verma, 22, who recently graduated from Iawaharlal Nehru University (JNU), with a master's in disaster management, and plans on pursuing a PhD. While applying, candi-

dates could key in preferences such as sector, functional role, State and district. According to the dashboard on the PM internship portal, internships have been offered across States and Union Territories, with the highest being in Maharashtra at 14,694, followed by Tamil Nadu at 13,263. The lowest was from Lakshadweep, which had just two offers.

Delhi offered a total of 3,543 opportunities.

According to the Minis-

try of Corporate Affairs' guidelines, companies will pay ₹500 per month from their CSR funds, based on

ment would initiate a direct benefit transfer of ₹4.500 to the intern's Aadhaar-seeded bank account. A one-time grant of ₹6,000 for incidental expenses would be provided to an intern upon joining.

attendance and conduct,

after which the govern-

While for those such as Kratika the stipend of ₹5,000 is a "huge bonus", some feel they would not be able to sustain with ₹5,000 per month, for an

entire year. Ravikant Tiwari, 19, a third-year student at Aryabhatta College, who had applied under the scheme, said he was worried that his expenses might exceed the stipend amount. At the Delhi University, an official said while there was interest in the scheme among students, many had also applied for the six-month vice-chancellor internship scheme - initiated last year - that offers a stipend of ₹5,500 per month.

### **Topic** → **The PM Internship scheme**

- SAURABH PANDEY
  CSE
  HOM BASICS TO THE BELLIAM
- The PM Internship scheme is a program designed to provide students and recent graduates with practical work experience.
- It is initiated by the Prime Minister's office to enhance the employability of young individuals.

The scheme aims to connect interns with various government departments and organizations.

- Participants receive mentorship and guidance from experienced professionals during their internship.
- The program is intended to foster skills development and professional networking opportunities.
- Internships typically last for a specified duration, allowing for immersive learning experiences.
- The initiative encourages diverse participation from students across different fields of study.

Summary: The PM Internship scheme offers students and recent graduates valuable work experience and mentorship in government sectors to enhance their employability



## **Topic** → **Biosensor**



No A new variant of human mpox has a mortality rate of approximately 5% among reported infections in the Democratic Republic of the Congo since 2023, affecting many children.

This variant has spread to other countries, while a different, less fatal variant has caused outbreaks in over 100 countries since 2022.

1 There is an urgent need for faster and more cost-effective diagnostic tools to control mpox and prepare for potential future pandemics.

A Researchers from UC San Diego and Boston University developed an optical biosensor for rapid detection of monkeypox, allowing for point-of-care diagnosis.



Traditional PCR tests are expensive, time-consuming, and require laboratory facilities, making them less practical for immediate diagnosis.

The new biosensor uses monoclonal antibodies and silicon chip technology to detect mpox within two minutes, distinguishing it from other viral infections.

The study detailing this technology was published on November 14, 2024, in the journal Biosensors and Bioelectronics.

Summary: A new optical biosensor developed by researchers can rapidly detect monkeypox, addressing the urgent need for effective diagnostic tools amid rising mpox infections globally.

#### What is biosensor??



A biosensor is a device that detects biological changes or analytes.

The strain of th

Biosensors are used in various fields, including medical diagnostics, environmental monitoring, and food safety.

Provide real-time data and are often portable for ease of use.

The development of biosensors is crucial for advancing personalized medici and rapid testing methods.

The global biosensor market is expected to grow significantly due to increasing demand for point-of-care testing.

Summary: Biosensors are devices that detect biological changes, widely used in diagnostics and monitoring, with a growing market potential.





## **Topic** →**Tree** and **Temperature**



- While trees can reduce temperatures, they increase humidity due to evaporation.
- This temperature reduction and humidity increase offset each other, resulting in minimal change to the wet-bulb temperature, which is a measure of combined heat and humidity stress.
- Daytime green spaces can feel cooler, but the increased humidity diminishes the perceived relief. At night, green spaces can lower both temperature and humidity due to reduced soil heat storage.

#### What is WET BULB TEMPERATURE ??



- The wet-bulb temperature (WBT) is a temperature that can be measured by a thermometer covered in cloth which has been soaked in water at ambient temperature (a wet-bulb thermometer) and over which air is passed.
- At 100% relative humidity, the wet-bulb temperature is equal to the air temperature (dry-bulb temperature); at lower humidity the wet-bulb temperature is lower than dry-bulb temperature because of evaporative cooling.
- The wet-bulb temperature is defined as the temperature of a parcel of air cooled to saturation (100% relative humidity) by the evaporation of water into it, with the latent heat supplied by the parcel



#### **Question Corner**

## Salt crystallisation

How are chimney-shaped vents on the floor of the Dead Sea formed?

A team of divers has discovered that meter-high chimney-shaped vents on the lake floor of the Dead Sea are formed by the spontaneous crystallisation of minerals from groundwater with an extremely high salt content flowing up out of the lake floor. The researchers discovered that saline groundwater flows out through the chimneys at the bottom of the lake. But where is the salt coming from? The groundwater from the surrounding aquifers penetrates into the saline lake sediments. leaching out extremely old

and thick layers of rock consisting mainly of the mineral halite. It then flows into the lake as brine. Contact with the lake water causes the dissolved salts, especially the halite, to spontaneously crystallise after emerging from the lake bed, forming the vents observed for the first time. These can grow by several centimetres within a single day. Many slender chimneys were one to two metres high, but they also include giants more than seven metres high, with a diameter of more than two-three metres.

Readers may send their questions / answers to questioncorner@thehindu.co.in

### Topic $\rightarrow$ Why Chimney shaped vents on the DEAD SEA .



Chimney Formation: Meter-high chimney-shaped vents on the Dead Sea floor are formed by the crystallization of minerals from saline groundwater.

♦ Groundwater Flow: Saline groundwater flows up through these chimneys, contributing to their formation.

Source of Salt: The salt originates from surrounding aquifers that leach ancient halite-rich rock layers.

Srine Creation: The leached minerals flow into the lake as brine, which interacts with the lake water.

🎇 Crystallization Process: Upon emerging from the lake bed, dissolved salts, particularly halite, crystallize spontaneously, forming the vents.



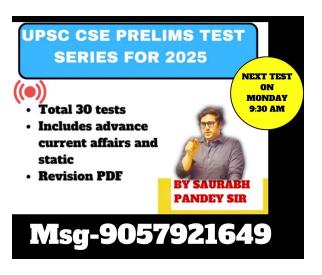
No Growth Rate: The vents can grow several centimeters in just one day.

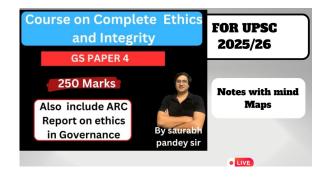
Size Variation: While many chimneys are 1-2 meters high, some can exceed 7 meters in height and have diameters of 2-3 meters.

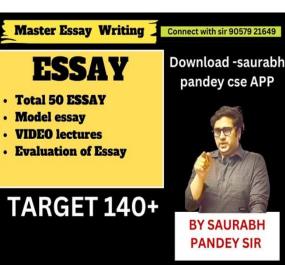
Summary: Chimney-shaped vents in the Dead Sea are formed by the crystallization of minerals from saline groundwater, with significant growth rates and size variations.

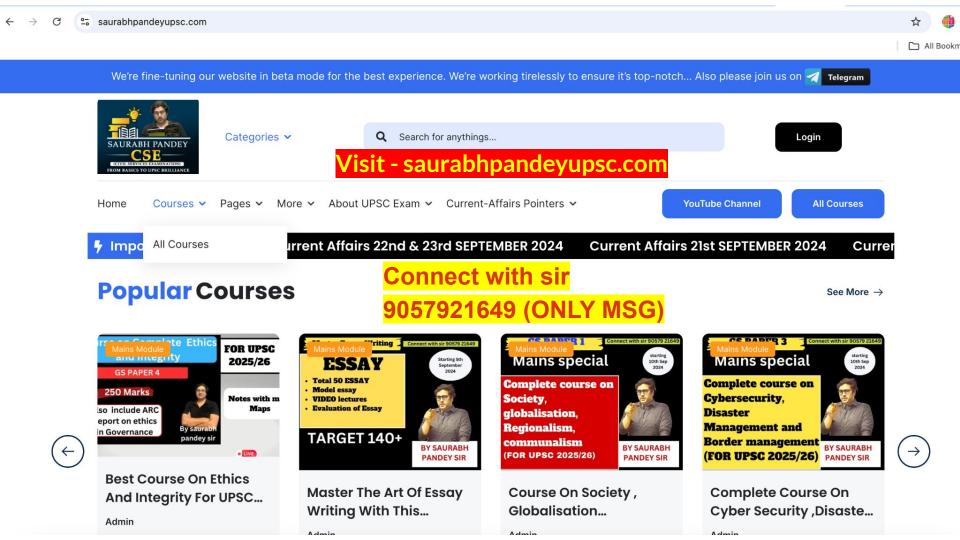












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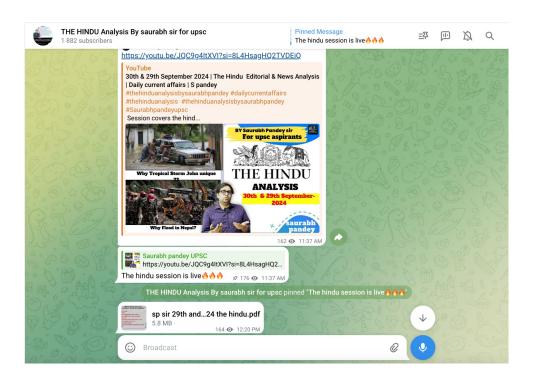


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