

# DAILY PT POINTERS

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The Hindu-GS3(Science and Tech)Page 5

# Shubhanshu Shukla to pilot NASA's Axiom-4 mission to ISS

**The Hindu Bureau**

BENGALURU

Indian astronaut Group Captain Shubhanshu Shukla will be the pilot of the upcoming Axiom-4 mission to the International Space Sta-

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- NASA and Axiom Space have signed an order for Axiom Mission 4 (Ax-4), a private astronaut mission to the ISS, with a launch target of August 2024. This mission supports NASA's goal of transitioning low Earth orbit operations to commercial ventures, while NASA focuses on deep space missions like Artemis to the Moon and Mars.

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## *INSV Tarini* crosses most remote part of earth

**The Hindu Bureau**  
NEW DELHI

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- Point Nemo, located in the South Pacific, is known as the Oceanic Pole of Inaccessibility — the most remote location on earth, situated 2,688 kilometres from the nearest landmass.





### SC relaxes condition for appointment of ad hoc judges to HCs

The Hindu Bureau  
NEW DELHI

A Special Bench of the Supreme Court headed by Chief Justice of India Sanjiv Khanna on Thursday relaxed a condition that ad hoc judges can be appointed to State High Courts only if their judicial vacancies crossed 20% of the sanctioned strength.

The condition was imposed four years ago by the Supreme Court in an April 2021 judgment in the *Lok Prahari versus Union of India* case.

#### Growing caseload

The Special Bench, also comprising Justices B.R. Gavai and Surya Kant, two of the senior-most *puisne* judges of the top court, passed the order keeping in mind the urgent need to curb the growing case pendency.

Article 224A of the Constitution provides for the



judge on a Division Bench to hear criminal appeals. The number of ad hoc judges must not exceed 10% of the sanctioned judicial strength of a High Court. That would mean at least two to five ad hoc judges could be appointed to a High Court.

The High Courts have over 60 lakh cases pending, of which nearly 20 lakh are criminal appeals.

Other conditions enumerated in the 2021 judgment for appointing ad hoc judges to High Courts include if cases in a particular category were pending

- The Supreme Court, led by Chief Justice Sanjiv Khanna, relaxed a 2021 rule on appointing ad hoc judges to High Courts, now allowing their appointment if vacancies exceed 10% of sanctioned strength. This aims to address the growing backlog of over 60 lakh pending cases, including 20 lakh criminal appeals. Ad hoc judges can assist with criminal appeals, and additional conditions for their appointment include cases pending for over five years and slow disposal rates.
- Article 224A of the Indian Constitution allows the Chief Justice of a High Court to request retired judges to act as judges, with the President's consent.

# HEADLINES OF THE DAY

The Hindu-GS2(Health)Page 20



Bihar, Chhattisgarh, Jharkhand, Maharashtra, and Odisha have the highest prevalence of leprosy. FILE PHOTO

## *Govt. plans to employ targeted containment to stop leprosy transmission*

**Bindu Shajan Perappadan**

The Union Health Ministry is looking at a more targeted approach to containing leprosy in India after having achieved the status of elimination of leprosy as a public health problem as per the World Health Organization's (WHO) criteria of less than 1 case per 10,000 population at the national level in 2005. To contain the

- The Union Health Ministry of India is adopting a targeted approach to control leprosy, having achieved its elimination as a public health problem in 2005. A new three-drug regimen has been introduced to halt transmission by 2027.
- The National Strategic Plan (2023-27) aims for zero transmission, focusing on early detection, awareness, and prevention. Leprosy remains prevalent in five states: Bihar, Chhattisgarh, Jharkhand, Maharashtra, and Odisha. Despite progress, India still reports a significant number of new cases, contributing to over half of global cases. Globally, leprosy affects over 120 countries, with around 200,000 new cases annually.

Indian Express-GS3(Economy)Page 8

## Govt marching country into 'middle income trap', says Cong

EXPRESS NEWS SERVICE  
NEW DELHI, JANUARY 30

TWO DAYS before the tabling of the Union Budget, the Congress Thursday released a report on the "Real State of the Economy" saying the government "is marching India forward into the middle income trap, which will make us uncompetitive, under-productive, and unequal".

Congress leader P Chidambaram, a former Union finance minister, told reporters at a press conference: "The economy is in a slowdown and that can't be denied. And it may have fallen up to two per cent of the previous year's growth. The second important factor is that there are no jobs. Youth employment is perhaps close to 40 per cent. Among graduates, the unemployment rate is close to 30 per cent."

He said wages have stagnated for four or five years, "es-

- The "middle-income trap," a term coined by the World Bank in 2007, refers to countries that experience economic growth and poverty reduction but struggle to transition to high-income status. As of the World Bank's 2024 report, the trap affects over 100 countries. Middle-income countries are classified based on their Gross National Income (GNI) per capita, ranging from \$1,136 to \$13,845.
- These countries make up 75% of the global population and contribute 40% of global economic output, yet 66% of people in extreme poverty live in these nations

# HEADLINES OF THE DAY



Indian Express-GS3(Environment)Page18

## IN POLAR BEAR FUR, POSSIBLE SOLUTION TO 'FOREVER CHEMICALS'

A NEW study says the fur of polar bears contains an oily substance that helps them remain dry despite the creatures sliding on ice and diving into water to hunt. This finding could potentially help develop an alternative to replace Per- and polyfluoroalkyl substances or PFAs, also called "forever chemicals".

The study, titled 'Anti-icing properties of polar bear fur', was published in the journal *Science Advances* on Wednesday. Researchers tested the resistance of the animal fur to ice using samples of polar bear fur from Svalbard in Norway and compared them with human hair. They washed half the fur samples and hair to clean them of sebum, an oily substance secreted by skin glands connected to hair follicles in mammals.

Upon testing the unwashed samples

against ice, they were found to contain sebum that was comparable to fluorinated ski skins. These materials are used in skis to grip them to ice and help them glide. However, fluorinated skins contain PFAs. Though extensively used in making nonstick cookware, water-repellent clothing and grease-resistant products, these chemicals do not break down and can remain in the environment for prolonged periods.

Analysing the properties of fur sebum revealed that it lacks squalene, a substance that is predominant in human sebum. The fur sebum also contains cholesterol and other fatty acids. "These could be unique to polar bears, but we can't be sure of

that, as so few studies have looked at the composition of animal sebum," physicist Bodil Holst, a co-author of the study told the *New Scientist* magazine. **ENS**



**PAPER  
CLIP**  
NEW RESEARCH

A study published in *Science Advances* found that polar bear fur contains an oily substance, sebum, which helps them stay dry by resisting ice, similar to fluorinated ski skins

### Polar bears

The polar bear's Latin name, *Ursus maritimus*, means "sea bear."

It is the largest bear in the world

It can walk on ice or swim long distances to find food or breed

**Habitats and Distribution :** Arctic Ocean, sea ice, and adjacent coastal areas

The species is found in Canada, Greenland/Denmark, Norway , Russia, United States

IUCN Status : **Vulnerable**

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### Managing crowds at religious gatherings: learnings from an NDMA study

DEEPTIMANTHAWARI  
NEW DELHI, JANUARY 30

A STAMPEDE at the Mahakumbh Mela on Wednesday left at least 30 people dead and 60 injured. Uttar Pradesh Chief Minister Yogi Adityanath said the administration was overwhelmed by the huge crowds moving towards the Sangam Nese at the same time.

A report published in 2014 by the National Disaster Management Authority (NDMA), the apex body on formulating disaster mitigation policies in the country, found that the "majority of the crowd disasters in India and developing countries have occurred at religious places".

#### What causes stampedes?

Stampedes can be caused by structural reasons (including weak temporary structures, poor barricading, poor guardrails, poorly-lit stairwells, narrow exits, etc.), fires

or electrical failures, inadequacies in crowd control, crowd behaviour, poor security, and lack of coordination between stakeholders.

According to the NDMA report, crowd control is key to avoiding stampedes. Crowd control can fail due to several reasons: the arrival of larger than anticipated crowd, allowing people in excess of a venue's holding capacity, limited holding areas before the entrance, lack of access control, closed/locked exits, lack of adequate and strong railings to marshal the queue, lack of sectoral partitions to segregate assembled crowds, etc.

According to the report, improper/inadequate arrangements add to the problem. Panic or excitement leads to either overcrowding or accelerated movement. "On occasions, this has led to deaths because of crushing, suffocation, and trampling. Compressive asphyxia has been the most common reason for deaths," the report says.

#### What role does crowd behaviour play?

According to the report, understanding crowd behaviour is an important aspect of preventing stampedes.

"Individual behaviour in a crowd is sometimes influenced by the behaviour of others. The unlawful actions of a few people can result in larger numbers following them. Research has shown that understanding of crowd behaviour has led to a community-based approach to crowd control instead of force based control," the report says.

Long waits at places of worship may "result in a few devotees climbing up the fences which could lead to a large number following them causing overcrowding in another area".

Inappropriate or poorly managed control procedures may worsen the situation. "For example, police reacting to a group of unruly people may chase them in a direction opposite to the incoming crowd, which may create a collision, and hence a disaster," it says.

#### What does the report say about past incidents?

The report makes a reference to the August 2003 stampede at the Nashik Kumbh, where 29 pilgrims died.

According to the report, a magisterial inquiry found these reasons for the stampede: the pressure of people at various points on the barricades, a sudden flow of people in

the reverse direction, sauths were allowed to move in procession on elephants and in jeeps along with pilgrims, and unforeseen ingress of pilgrims onto the path from various points.

Following the stampede at the Kalubai Yatra Mandhardevi at Wai, Satara, in January 2005, in which 293 people were killed, an inquiry commission under Justice Rajan Kochar found the following causes:

"Wrong crowd estimates (More pilgrims expected because of Tuesday); Temple compound not big enough to hold large

number of pilgrims; Narrow, steep, wet (slippery), winding path with (illegal) vendors (some having gas cylinders) on both sides; Illegal electric connections; Inadequate safety, security (no watchtowers, public address systems), fire, water, and medical assistance; Poor Infrastructure (Only plans, no implementations); Lack of coordination among various stakeholders."

#### How does crowd control work?

The NDMA report argues that most stampedes can be prevented with proactive and holistic planning, and flawless execution.

"The guiding principle for crowd control should be managing the demand-supply gap through i) controlling the crowd inflow, ii) regulating the crowd at the venue, and iii) controlling the outflow, if needed," the report says.

In order to understand demand, the report says, the authorities need to understand the history of numbers, crowd arrival

patterns, type of visitors, etc.; and in order to understand the supply, authorities need to calculate the capacity at the venue – things like seating capacity and offerings or prayers possible per hour.

"At a number of places, demand simply outstrips supply, leading to overcrowding. Because of this, there is a need for an input control i.e., restricting the number of entries. A mandatory registration process makes this possible," the report says.

Giving the examples of shrines at Vaishnodevi and Sabarimala, the report says a lot of places have started online registration of pilgrims. "This registration process could be used to influence the arrival pattern," it says.

The report says that at a number of places, it is impossible to increase supply capacity because of religious beliefs or topological reasons. In such cases, since the wait is unavoidable, the only possibility is to make it comfortable.

- A stampede at the Mahakumbh Mela in Allahabad on January 29, 2025, killed 30 people and injured 60. The National Disaster Management Authority (NDMA) report from 2014 highlights that most crowd disasters in India occur at religious events, caused by factors like weak structures, poor crowd control, overcrowding, and lack of coordination.
- The report stresses the importance of managing crowd behavior, controlling inflows, and ensuring adequate infrastructure. It references past incidents, such as the 2003 Nashik Kumbh and 2005 Kalubai Yatra stampedes, which were caused by poor planning, overcrowding, and inadequate safety measures.
- To prevent stampedes, the report recommends proactive planning, registration systems, and better infrastructure, including staging points and improved information dissemination.



# HEADLINES OF THE DAY

## Air-GS3(Economy)

### Budget Session Of Parliament To Begin With President's Address



- The Budget session of Parliament begins today with President Droupadi Murmu's address. Finance Minister Nirmala Sitharaman will present the Economic Survey, marking the start of the session.
- The Union Budget will be presented tomorrow, followed by discussions on the Motion of Thanks. 16 bills, including the Finance Bill 2025, will be debated. The session runs until February 13, with a second part from March 10 to April 4.