



THE HINDU



## GS Paper 1-Geography

# Strength of cloud band influences movement and density of rain during Indian monsoons: IISc study

**The Hindu Bureau**

BENGALURU

A recent study from the Indian Institute of Science (IISc) has shown that contrary to previous understanding, the strength of a cloud band (a nearly continuous cloud formation) plays a key role in the movement and density of rain that the Indian subcontinent receives during the wet spells of monsoons.

The monsoons have long remained the life-



**Welcome spells:** The monsoons in India provides the lion's share of the water used for drinking and irrigation. BISWARANJAN ROUT

India receives 80% of its annual rainfall during the summer monsoon between June and September, which are marked by several wet and dry spells along with strong winds.

These spells are controlled by the Boreal Summer Intraseasonal Oscillation (BSISO), also called monsoon intraseasonal oscillations, which also brings a cloud band from the equator over to the Indian subcontinent, putting an end to the dry spell. The duration of the wet spell is

the cloud band propagates northward regardless of the strength of disturbance at the equator.

"Most of the existing literature says that even if you put any small instability, it should always propagate northwards. What we have shown is that this is not the case. If the cloud band in the equator is weak to start with, then it cannot propagate north," said Aditya Kottapalli, PhD student at the Centre for Atmospheric and Oceanic Sciences (CAOS), IISc, and





## KEY POINTS

- A recent IISc study reveals that the strength of monsoon cloud bands affects rainfall movement and intensity. It challenges previous theories, showing that a weak cloud band at the equator cannot propagate northward.







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## GS Paper 2-Governance

# Centre issues guidelines to tackle high rate of job card deletions under MGNREGS

**Sobhana K. Nair**  
NEW DELHI

The Ministry of Rural Development has issued guidelines to tackle the challenge of high rate of deletions of job cards issued to workers under the Mahatma Gandhi National Rural Employment Guarantee Scheme.

In the past four years, names of 10.43 crore workers have been deleted from the programme. The high rate of deletions has coincided with the govern-



**Taking action:** In the past four years, the names of 10.43 crore workers have been deleted from the programme. FILE PHOTO

the social audit gram sabha, or in a special gram sabha called for the

according to the guidelines. Twice a year, the guidelines suggest, gram sab-



## KEY POINTS

- The Mahatma Gandhi NREGS is a wage employment program guaranteeing 100 days of work per year for rural households, focusing on unskilled manual labor. Established in 2005, it aims to enhance livelihood security, with at least one-third of beneficiaries being women.





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## GS Paper 2-IR

# India Navy announces maiden India-African exercise, IOS Sagar

**Dinakar Peri**

NEW DELHI

Against the backdrop of massive inroads by China in Africa, the renewed threat of piracy and the continued threat from Houthi rebels to global shipping, the Indian Navy has announced initiatives for bolder cooperation with the continent and the Indian Ocean Region (IOR).



Vice Admiral Tarun Sobti

from 9 African countries.

Louis, Port Victoria and Male and Joint surveillance of Exclusive Economic Zones (EEZs) of Tanzania, Mozambique, Mauritius and Seychelles," Deputy Chief of Naval Staff Vice Admiral Tarun Sobti said, briefing the media.

With the announcement of Mutual and Holistic Advancement for Security Across the Regions (MAHA-SAGAR) by Prime Minister

wholeship activities, watch keeping and other events related to their respective branches/trade, according to the Navy. The participants of IOS Sagar are also set to witness harbour phase activities of Exercise AIKEYME at Dar-es-Salaam, Tanzania.

Over the past decade, the Indian Navy has been extensively collaborating with Indian Ocean littoral



## KEY POINTS

- The Indian Navy is enhancing cooperation with Africa and the Indian Ocean Region through initiatives like the "Africa India Key Maritime Engagement" (AIKEYME) exercise and the "Indian Ocean Ship (IOS) Sagar." These efforts include joint surveillance, training, and port visits to strengthen India's role as the region's security partner.







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## GS Paper 3- Economy/Environment

### *Colossal wastage that is food for thought*

**T**he United Nations Environment Programme's Food Waste Index Report (FWIR) 2024 reveals that in 2022, the world wasted 1.05 billion tonnes of food, equating to nearly 20% of all food available to consumers. Alarmingly, India ranks among the top contributors to this global issue. This is an issue that demands our immediate attention. This issue transcends mere resource mismanagement, representing a profound moral and environmental failure.

#### **Wastage versus loss**

Food wastage, as defined by FWIR 2024, includes edible and inedible parts discarded from the food supply chain, from manufacturing and retail to restaurants and households. This differs from food loss, which occurs earlier in the supply chain due to issues such as poor storage



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preparation (cooking large portions for celebrations or guests). In urban areas, retail markets struggle with poor refrigeration and product short shelf life. Approximately 61% of global food waste occurs at the household level, highlighting the importance of consumer education and better food management practices to address this crisis.

#### **Measuring the environmental impact**

The environmental cost of food waste is immense. Food production is resource-intensive, requiring huge amounts of land, water and energy. When food is wasted, so are these precious resources. In India, food waste accounts for 10%-12% of total municipal waste, contributing significantly to methane emissions from landfills (methane is a potent greenhouse gas produced when organic matter decomposes without

weather shocks (droughts, floods and landslides) disrupt crop yields and weaken supply chains. Food waste exacerbates this by increasing the demand for limited resources.

#### **Actions that need to be taken**

Addressing this crisis requires a multi-pronged approach encompassing both individual actions and systemic reforms. At the household level, individuals can reduce waste through smart meal planning and shopping (creating and sticking to shopping lists), efficient food storage (using airtight containers and storing food at the right temperatures), creative use of leftovers (turning leftover vegetables into soup), composting (turning kitchen scraps into vermicompost) and donating surplus food (to local food banks or charities). Systemically, the government must invest in building more cold storage and





## KEY POINTS

- The 2024 UN Environment Programme's Food Waste Index Report reveals that 1.05 billion tonnes of food were wasted globally in 2022, with India being a major contributor. Factors like over-purchasing, poor meal planning, and inadequate storage lead to significant household waste, despite India's large food production.







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# GS Paper 3-Science and Tech



## What are DNA polymorphisms and how do they differentiate between people?

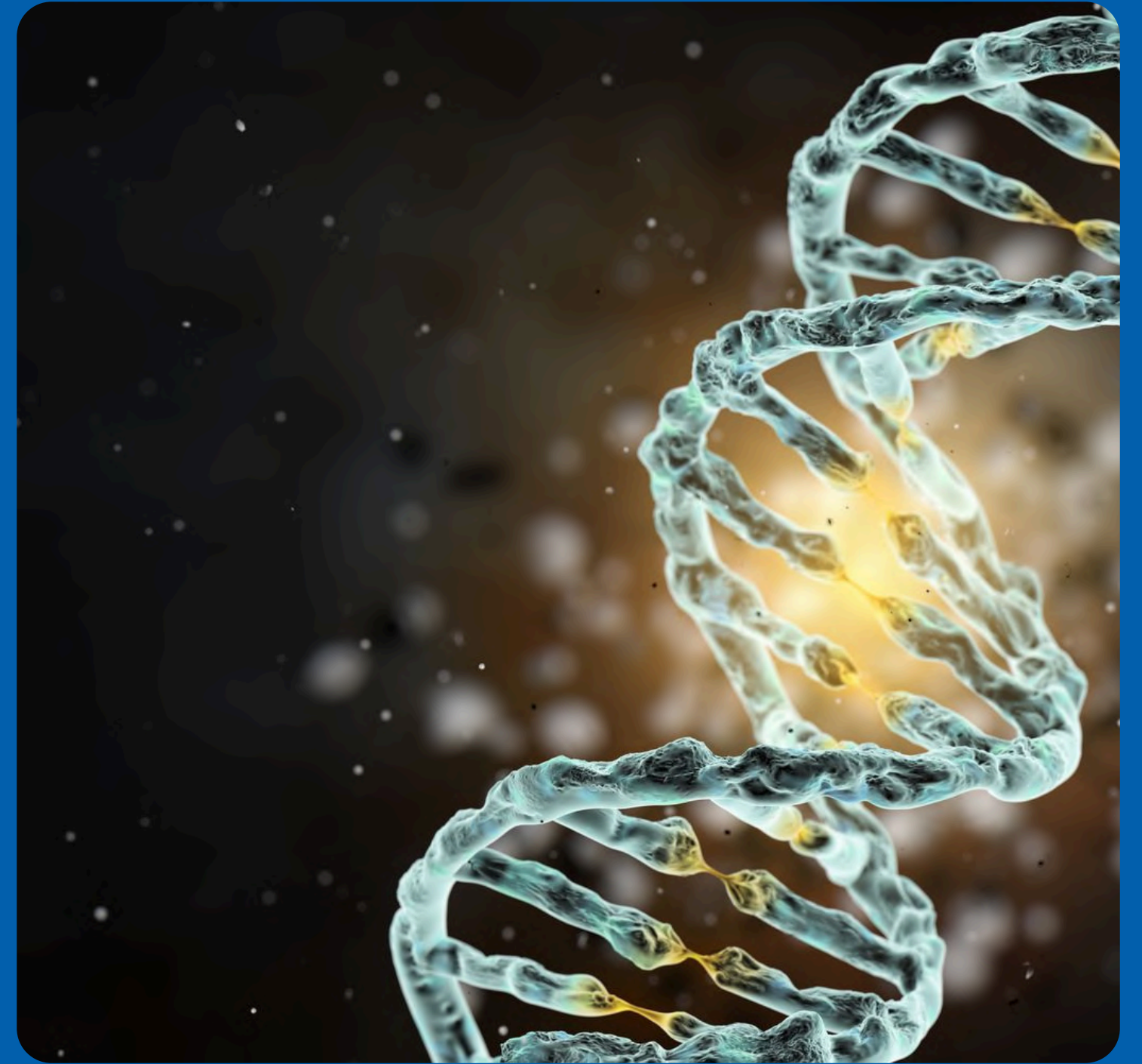
DNA fingerprints can establish parent-child relationships and help identify individuals from their mortal remains at disaster sites. DNA fingerprints have also connected wrongly accused criminals. Scientists have extracted DNA, almost intact, from 6500-year-old human remains.





## KEY POINTS

- DNA is a molecule containing genetic information organized into 46 chromosomes. Variations in DNA, especially in short tandem repeats (STRs), help identify individuals. PCR is used to amplify DNA, and capillary electrophoresis creates a unique DNA fingerprint. This fingerprint aids in identifying people, solving crimes, and establishing relationships.





## GS 2-Governance

# Supreme Court sets up task force to address student suicides, says they have surpassed farmer suicides

The Supreme Court makes the remarks in an order challenging a Delhi High Court decision to dismiss pleas filed by the parents of two Scheduled Caste students of IIT Delhi who allegedly died by suicide.



## KEY POINTS

- The Supreme Court has formed a task force, led by Justice S. Ravindra Bhat, to address student suicides and mental health issues in higher education. The task force will assess causes, review existing frameworks, and recommend measures to improve the academic environment.

