



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>
YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>
CONTACT: 9971932488



PATRIOTIC IAS

DAILY CURRENT AFFAIRS

THE HINDU NEWSPAPER

13 APRIL 2026

YouTube link: <https://www.youtube.com/@PatrioticIAS>

Telegram Channel: <https://t.me/patrioticIAS>

PCS Special:	13 April
13A	Asha Bhosle, legendary playback singer, dies in Mumbai at the age of 92 आशा भोसले, महान पार्श्व गायिका, 92 वर्ष की आयु में मुंबई में निधन



Asha Bhosle, legendary playback singer, dies in Mumbai at the age of 92

PCS

Chinmay Gaikwad
MUMBAI

Legendary playback singer Asha Bhosle died in Mumbai on Sunday. She was 92.

The singer had been admitted to the Breach Candy Hospital on Saturday evening with exhaustion and a chest infection. Hospital officials said the cause of death was multi-organ failure following a cardiac arrest.

Her son, Anand Bhosle, confirmed the news outside the hospital. He said that those who wish to pay their last respects may visit her residence on Monday at 11 a.m., and that the last rites will be performed at Shivaji Park, Dadar, at 4 p.m. with full state honours.

Ms. Bhosle, who recorded nearly 12,000 songs in over 20 Indian and foreign languages, is considered one of the most versatile voices in Indian music.

Part of heritage

Condoling the death of the singer, President Droupadi Murmu said that it has created a huge void in the world of music.

"She led her life on her own terms as an artist and as an individual. With her melodious and timeless voice, she enriched Indian music for decades," the President said.

Describing her as one of the most famous and versatile voices, Prime Minister Narendra Modi said he was deeply saddened by her passing.

Her musical journey enriched the country's cultural heritage and touched the hearts of millions across the world, he said.



ASHA BHOSLE (1933-2026)

Born in a musical family, she began singing at the age of 10. Her first song was *Chala Chala Nav Bala* for the 1943 Marathi film *Majha Bal*. She entered Hindi cinema five years later with *Saawan Aaya* in *Chunariya* (1948). Her work in *Naya Daur* (1957) brought her wider recognition.

Over the decades, she recorded more songs than any other female playback singer of her time. The Guinness World Records recognised her for the most studio recordings.

She was honoured with the Dadasaheb Phalke Award, Padma Vibhushan, and Maharashtra Bhushan. Some of her famous songs are *Chura Liya Hai Tumne Jo Dil Ko*, *Dum Maro Dum*, *Piya Tu Ab To Aaja* and *In Aankhon Ki Masti*.

Maharashtra Governor Jishnu Dev Varma said her versatility and contribution left a lasting mark on music lovers.

Chief Minister Devendra Fadnis said her demise marked the loss of another towering figure from the Mangeshkar family after "Lata Didi".

The Congress party con-
doled the demise of the le-

gendary singer, with party chief Mallikarjun Kharge saying that an era of playback singing has come to an end.

"An epitome of legendary versatility and grace, her unique style of singing was appreciated by millions across the globe," Mr. Kharge said in an X post.

Deputy Chief Ministers Eknath Shinde and Sune-
tra Ajit Pawar paid their tributes and mourned the demise.

Maharashtra Navnirman Sena chief Raj Thackeray said that despite personal hardships, she never let sorrow overpower her spirit.

Former Maharashtra Chief Minister Uddhav Thackeray said her songs would remain her enduring legacy.

Congress leader Sachin Sawant said she exemplified the meaning of versatility through her career.

Filmmaker Subhash Ghai and lyricist Prasoon Joshi were among those who remembered the iconic voice.

(With PTI inputs)

VOICE OF MODERN INDIA

» PAGE 6

13A. Asha Bhosle, legendary playback singer, dies in Mumbai at the age of 92 आशा भोसले, महान पार्श्व गायिका, 92 वर्ष की आयु में मुंबई में निधन

Ms. Bhosle, who recorded nearly 12,000 songs in over 20 Indian and foreign languages, is considered one of the most versatile voices in Indian music.

सुश्री भोसले, जिन्होंने 20 से अधिक भाषाओं में लगभग 12,000 गीत गाए, भारतीय संगीत की सबसे बहुमुखी आवाजों में से एक मानी जाती हैं

Part of heritage विरासत का हिस्सा

Condoling the death of the singer, President Droupadi Murmu said that it has created a huge void in the world of music.

गायिका के निधन पर शोक व्यक्त करते हुए राष्ट्रपति द्रौपदी मुर्मू ने कहा कि इससे संगीत जगत में एक बड़ा शून्य उत्पन्न हो गया है

Born in a musical family, she began singing at the age of 10.

एक संगीत परिवार में जन्मी, उन्होंने 10 वर्ष की उम्र में गाना शुरू किया

Her first song was *Chala Chala Nav Bala* for the 1943 Marathi film *Majha Bal*.

उनका पहला गीत *Chala Chala Nav Bala* था, जो 1943 की मराठी फिल्म *Majha Bal* के लिए था

She entered Hindi cinema five years later with *Saawan Aaya* in *Chunariya* (1948).

उन्होंने पांच साल बाद 1948 की फिल्म *Chunariya* के गीत *Saawan Aaya* से हिंदी सिनेमा में प्रवेश किया

Her work in *Naya Daur* (1957) brought her wider recognition.

1957 की फिल्म *Naya Daur* में उनके काम से उन्हें व्यापक पहचान मिली

Over the decades, she recorded more songs than any other female playback singer of

her time.

दशकों में उन्होंने अपने समय की किसी भी अन्य महिला पार्श्व गायिका से अधिक गीत रिकॉर्ड किए

The Guinness World Records recognised her for the most studio recordings.

गिनीज वर्ल्ड रिकॉर्ड्स ने उन्हें सबसे अधिक स्टूडियो रिकॉर्डिंग्स के लिए मान्यता दी

She was honoured with the Dadasaheb Phalke Award, Padma Vibhushan, and Maharashtra Bhushan.

उन्हें दादासाहेब फाल्के पुरस्कार, पद्म विभूषण, और महाराष्ट्र भूषण से सम्मानित किया गया

Some of her famous songs are *Chura Liya Hai Tumne Jo Dil Ko*, *Dum Maro Dum*, *Piya Tu Ab To Aaja* and *In Aankhon Ki Masti*.

उनके प्रसिद्ध गीतों में *Chura Liya Hai Tumne Jo Dil Ko*, *Dum Maro Dum*, *Piya Tu Ab To Aaja* और *In Aankhon Ki Masti* शामिल हैं

Maharashtra Governor Jishnu Dev Varma said her versatility and contribution left a lasting mark on music lovers.

महाराष्ट्र के राज्यपाल जिष्णु देव वर्मा ने कहा कि उनकी बहुमुखी प्रतिभा और योगदान ने संगीत प्रेमियों पर स्थायी प्रभाव छोड़ा



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



Questions and Answers to the previous day's daily

quiz: 1. What was Rahul Sankrityayan's birth name?

Ans: Kedarnath Pandey

2. Which celebrated work of historical fiction by Rahul Sankrityayan traces the evolution of human society through stories spanning thousands of years? Ans:

Volga Se Ganga (From Volga to Ganga)

3. Which Rahul Sankrityayan's works won the Sahitya Akademi Award in 1958? Ans: **Madhya Asia ka Itihas (History of Central Asia)**

4. Which 1934 work of Sankrityayan's introduces readers to Marxist historical interpretation? Ans:

Samyavad Hi Kyon (Why Socialism?)

5. Rahul Sankrityayan spent time teaching Sanskrit at which major foreign academic institution? Ans: **Leningrad State University in the Union of Soviet Socialist Republics.**

Visual: This photograph of Rahul Sankrityayan in handcuffs was taken after his arrest during which peasant movement in Bihar? Ans: **The Amwari Kisan Satyagraha of 1939, associated with the peasant mobilisation of the All India Kisan Sabha**

Early Birds: K.N. Viswanathan | Sukdev Shet | Neil Lall | Suman Aditi | Varghese Joseph

13A. QUIZ: Birth Name of Rahul Sankrityayan

• Rahul Sankrityayan, known as the “Father of Hindi Travel Literature,” was originally born as **Kedarnath Pandey** in 1893 in present-day Uttar Pradesh.

• His birth name reflects his early upbringing in a traditional Brahmin family. Later, after embracing Buddhism during his travels, he adopted the name “Rahul,” inspired by the son of Gautama Buddha, and “Sankrityayan,” indicating his scholarly lineage.

• This transformation symbolized his intellectual evolution and ideological shift.

• The name **Kedarnath Pandey** represents Rahul Sankrityayan's original identity before his philosophical and cultural transformation.

• His extensive travels across Asia, especially **Tibet and Sri Lanka**, exposed him to Buddhist philosophy, leading to a conscious renaming.

Celebrated Work of Rahul Sankrityayan

- The renowned historical fiction work is **Volga Se Ganga**, published in 1943.
- This book is a collection of interconnected stories tracing human civilization's journey from the Volga region in Eurasia to the Ganga plains in India.

- The work that received the **Sahitya Akademi Award in 1958** is **Madhya Asia ka Itihas**.
- This book is a comprehensive historical study of Central Asia, covering political, cultural, and economic developments.

1934 Work Introducing Marxist Interpretation by Rahul Sankrityayan

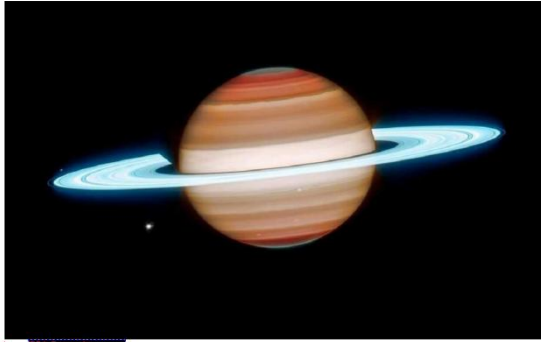
- The notable 1934 work is **Samyavad Hi Kyon**. In this book, Sankrityayan explains the principles of socialism and Marxism in a simple and accessible manner for Indian readers.
- It reflects his ideological shift towards Marxist thought and aims to popularize scientific and materialist interpretations of history and society during the pre-independence period.

Foreign Academic Institution Associated with Rahul Sankrityayan

- Rahul Sankrityayan taught Sanskrit at **Leningrad State University** in the former Union of Soviet Socialist Republics (USSR).
- His appointment reflects his global academic recognition and deep expertise in classical Indian languages. During his time there, he contributed to the spread of Indian knowledge traditions and strengthened intellectual exchanges between India and the Soviet Union.
- Leningrad State University was one of the USSR's premier institutions, attracting international scholars. Sankrityayan's role as a Sanskrit teacher highlights his mastery over multiple languages and disciplines.
- His engagement also symbolizes early Indo-Soviet cultural and academic cooperation. His teachings helped introduce Indian philosophical and linguistic traditions to foreign students, and his international exposure further enriched his scholarly works, which are widely referenced in academic and research institutions.



GS Paper 1: Geography		13 April 2026
TOPICS COVERED		
13A	A.P.'s Polavaram hydel project gathers pace with advanced turbine tech आंध्र प्रदेश का पोलावरम जलविद्युत परियोजना उन्नत टर्बाइन तकनीक के साथ गति पकड़ रही है	
13A	Israel's Ben-Gvir visits flashpoint Al-Aqsa Mosque compound इज़राइल के बेन-ग्विर ने संवेदनशील अल-अक्सा मस्जिद परिसर का दौरा किया	



In March, the Webb and Hubble space telescopes teamed up to observe Saturn and acquire a richer understanding of its atmosphere. This image shows Webb's view. The rings are bright because they are made of water ice, which is very reflective. The image also highlights the jet stream called the ribbon wave across the northern mid-latitudes.

In March, the Webb and Hubble space telescopes teamed up to observe Saturn and acquire a richer understanding of its atmosphere. This image shows Webb's view. The rings are bright because they are made of water ice, which is very reflective. The image also highlights the jet stream called the ribbon wave across the northern mid-latitudes. NASA

13A. Israel's Ben-Gvir visits flashpoint Al-Aqsa Mosque compound इज़राइल के बेन-ग्विर ने संवेदनशील अल-अक्सा मस्जिद परिसर का दौरा किया

- Israel's far-right National Security Minister **Itamar Ben-Gvir** visited the flashpoint **Al-Aqsa Mosque compound** in **Jerusalem** on Sunday, saying he was seeking greater access for Jewish worshippers.
इज़राइल के दक्षिणपंथी राष्ट्रीय सुरक्षा मंत्री इतामार बेन-ग्विर ने रविवार को यरुशलम स्थित संवेदनशील अल-अक्सा मस्जिद परिसर का दौरा किया और कहा कि वे यहूदी उपासकों के लिए अधिक पहुंच चाहते हैं।
- The **Jordanian Foreign Ministry** said it considered Mr. Ben-Gvir's visit to be a violation of the **status quo agreement**.
जॉर्डन के विदेश मंत्रालय ने कहा कि बेन-ग्विर की यह यात्रा यथास्थिति समझौते का उल्लंघन है।

Israel's Ben-Gvir visits flashpoint Al-Aqsa Mosque compound



GS I: Geography AFP
Israel's far-right National Security Minister Itamar Ben-Gvir visited the flashpoint Al-Aqsa Mosque compound in Jerusalem on Sunday, saying he was seeking greater access for Jewish worshippers. The Jordanian Foreign Ministry said it considered Mr. Ben-Gvir's visit to be a violation of the status quo agreement. REUTERS

GS Paper II: Polity		13 April 2026
TOPICS COVERED		
13A	Delimitation, and not women's reservation, is the issue मुद्दा महिलाओं का आरक्षण नहीं, बल्कि परिसीमन है	
13A	Between 14 years and the gallows 14 वर्षों और फांसी के बीच	



Delimitation, and not women's reservation, is the issue

GS II: Polity

The Prime Minister is making appeals to Opposition parties to support Bills that the government wants to bulldoze in a special session of Parliament when the election campaign in Tamil Nadu and West Bengal will be at its peak. There can be only one reason for the extraordinary hurry, which is to derive political advantage and place the Opposition on the defensive.

The Prime Minister is, as usual, being economical with the truth.

The Parliament passed the Nari Shakti Vandan Adhiniyam, 2023 unanimously in September 2023 during a special session. The Adhiniyam introduced **Article 334-A** in the Constitution which mandated one-third reservation for women in the Lok Sabha and Vidhan Sabhas, scheduled to come into effect after the completion of the next Census and the Census-based delimitation process. The Opposition had not asked for this condition. In fact, the Leader of the Opposition in the Rajya Sabha, Shri Mallikarjun Kharge, had forcefully demanded that the reservation provision be implemented from the 2024 Lok Sabha elections itself. For reasons best known to itself, the government did not agree.

Now, we are given to understand that **Article 334-A** will be amended to make women's reservation applicable from 2029 itself. Why did it take the Prime Minister 30 months to make his U-turn? And why can he not wait a few weeks to convene the special session? Opposition leaders have written to the government not once but thrice requesting that an all-party meeting be convened after the last phase of elections is over in West Bengal on April 29, to discuss what the new proposals of the government are. But that perfectly reasonable request has been turned down. Instead, the Prime Minister has resorted to writing op-eds, making appeals to political parties, and organising *sammelans*. It is an underhand tactic that reflects the Prime Minister's one-upmanship and his 'my way or the highway' approach to decision-making.

Lessons from the past

Contrast this with the manner in which the 73rd



Sonia Gandhi
Chairperson of the Congress Parliamentary Party

Any delimitation involving an increase in the strength of the Lok Sabha must be politically – and not just arithmetically – equitable

and 74th Constitution Amendment Bills were finally passed by Parliament in April 1993 and June 1993, respectively. The Bills took almost five years of discussion and debate, following which reservation for women in elections to panchayats and *nagarpalikas* became law. This was a singular achievement of the late Prime Minister Rajiv Gandhi. Today, there are about 15 lakh elected women representatives in rural and urban local bodies, constituting over 40% of the total. The Nari Shakti Vandan Adhiniyam, 2023 stands on the shoulders of this achievement.

The last decadal Census was due in 2021. The Modi government kept postponing it. One consequence of this has been that over 10 crore people have been deprived of their legal entitlements under the National Food Security Act, 2013 that provides the basis for the Pradhan Mantri Garib Kalyan Anna Yojana. Census operations have begun only after an inexplicable delay of five years. It is being proudly claimed that it is a digital Census. Senior officials have themselves publicly declared that because of its digital nature, most of the population enumeration numbers will be available in 2027 itself. The government's excuses for its tearing hurry to call this session and conduct delimitation are evidently hollow.

Almost exactly a year ago, the Prime Minister announced that the 2027 Census would also be a caste census. This was after filing affidavits in the Supreme Court and answering questions in Parliament rejecting the idea of conducting a caste census. This was also after the Prime Minister accused Congress leaders calling for a caste census as suffering from what he called "an urban naxal mindset". Be that as it may, Census 2027 is supposed to enumerate the population by caste in order to give greater meaning to social justice and empowerment. Bihar and Telangana have carried out comprehensive caste surveys in their respective States, with the whole process not taking more than six months.

It is clear, therefore, that the propaganda that a caste census will delay the publication of the Census 2027 is just not true. In fact, the Prime Minister's real intention now is to further delay and derail the caste census.

The special session is scheduled to begin on April 16. Yet till now, there has been no official proposal shared with MPs on what exactly the government wants the session to consider. It appears that some formula for delimitation is being suggested. Any delimitation must be preceded by a Census exercise as in the past. And it goes without saying that any delimitation involving an increase in the strength of the Lok Sabha must be politically – and not just arithmetically – equitable. States that have been pioneers in family planning, and smaller States, must not be placed at an absolute or relative disadvantage.

A proportionate increase may, in fact, result in the loss of relative influence because the difference in absolute numbers get magnified.

Need for careful consideration

The Nari Shakti Vandan Adhiniyam, 2023 provides for reservation within reservation. This means that the one-third of seats reserved for Scheduled Castes and Scheduled Tribes respectively will also be reserved for women.

During the debate in September 2023, the Leader of the Opposition in the Rajya Sabha had demanded that a similar reservation be also provided for women belonging to the Other Backward Classes (OBCs). Reservation for OBCs has been already provided for in higher education and government employment.

The monsoon session of Parliament will begin in mid-July. The heavens will not fall if the government were to call an all-party meeting after April 29, to discuss its proposals with the Opposition, allowing time for a public debate, and then have the Constitution Amendment Bills considered in the monsoon session. There is simply no justification, except narrative management during troubled times, for this tearing hurry to bulldoze extremely far-reaching changes to our polity. The process is deeply flawed and anti-democratic. Reservation for women is not the issue here. That has already been settled. The real issue is delimitation which, based on the information unofficially available, is extremely dangerous and an assault on the Constitution itself.

13A. Delimitation, and not women's reservation, is the issue

मुद्दा महिलाओं का आरक्षण नहीं, बल्कि परिसीमन है

- The Parliament passed the **Nari Shakti Vandan Adhiniyam, 2023** unanimously in September 2023 during a special session. संसद ने नारी शक्ति वंदन अधिनियम, 2023 को सितंबर 2023 में विशेष सत्र के दौरान सर्वसम्मति से पारित किया।
- The Adhiniyam introduced **Article 334-A in the Constitution** which mandated **one-third reservation for women in the Lok Sabha and Vidhan Sabhas**, scheduled to come into effect after the completion of the **next Census and the Census-based delimitation process**. इस अधिनियम ने संविधान में अनुच्छेद 334-ए जोड़ा, जिसमें लोकसभा और विधानसभा में महिलाओं के लिए एक-तिहाई आरक्षण का प्रावधान किया गया, जो अगली जनगणना और उसके आधार पर परिसीमन प्रक्रिया के बाद लागू होना था।
- The Opposition had not asked for this condition. विपक्ष ने इस शर्त की मांग नहीं की थी।
- In fact, the Leader of the Opposition in the Rajya Sabha, Shri **Mallikarjun Kharge**, had forcefully demanded that the reservation provision be implemented from the **2024 Lok Sabha elections** itself. वास्तव में, राज्यसभा में विपक्ष के नेता **मल्लिकार्जुन खड़गे** ने जोर देकर मांग की थी कि यह आरक्षण प्रावधान **2024 के लोकसभा चुनाव से ही लागू किया जाए**।
- For reasons best known to itself, the government did not agree. सरकार ने अपने कारणों से इस पर सहमति नहीं दी।



- Now, we are given to understand that **Article 334-A will be amended** to make women's reservation applicable from **2029 itself**.
अब यह समझा जा रहा है कि **अनुच्छेद 334-ए में संशोधन किया जाएगा** ताकि महिलाओं का आरक्षण **2029 से लागू किया जा सके**।
- Why did it take the Prime Minister **30 months to make his U-turn**?
प्रधानमंत्री को **अपने निर्णय को बदलने में 30 महीने क्यों लगे?**
- And why can he not wait a few weeks to convene the **special session**?
और वे **विशेष सत्र बुलाने के लिए कुछ सप्ताह इंतजार क्यों नहीं कर सकते?**

Lessons from the past अतीत से सबक

- Contrast this with the manner in which the **73rd and 74th Constitution Amendment Bills** were finally passed by Parliament in **April 1993 and June 1993**, respectively.
इसे उस तरीके से तुलना करें जिसमें **73वां और 74वां संविधान संशोधन विधेयक क्रमशः अप्रैल 1993 और जून 1993** में संसद द्वारा पारित किए गए थे।
- The Bills took almost **five years of discussion and debate**, following which reservation for women in elections to **panchayats and nagarpalikas** became law.
इन विधेयकों पर लगभग **पांच वर्षों तक चर्चा और बहस हुई**, जिसके बाद **पंचायतों और नगरपालिकाओं में महिलाओं के लिए आरक्षण कानून बना**।
- This was a singular achievement of the late Prime Minister **Rajiv Gandhi**.
यह दिवंगत प्रधानमंत्री **राजीव गांधी** की एक महत्वपूर्ण उपलब्धि थी।
- Today, there are about **15 lakh elected women representatives** in rural and urban local bodies, constituting over **40% of the total**.
आज ग्रामीण और शहरी स्थानीय निकायों में लगभग **15 लाख निर्वाचित महिला प्रतिनिधि** हैं, जो कुल का **40% से अधिक** हैं।
- The **Nari Shakti Vandan Adhiniyam, 2023** stands on the shoulders of this achievement.
नारी शक्ति वंदन अधिनियम, 2023 इसी उपलब्धि की नींव पर आधारित है।
- The last decadal **Census** was due in **2021**.
पिछली दशकीय **जनगणना 2021** में होनी थी।
- The Modi government kept **postponing it**.
मोदी सरकार ने इसे **लगातार टालते रही**।
- One consequence of this has been that over **10 crore people** have been deprived of their **legal entitlements under the National Food Security Act, 2013** that provides the basis for the **Pradhan Mantri Garib Kalyan Anna Yojana**.
इसका एक परिणाम यह हुआ कि **10 करोड़ से अधिक लोग राष्ट्रीय खाद्य सुरक्षा अधिनियम, 2013** के तहत अपने **कानूनी अधिकारों** से वंचित हो गए, जो **प्रधानमंत्री गरीब कल्याण अन्न योजना** का आधार है।
- Census operations have begun only after an **inexplicable delay of five years**.
जनगणना की प्रक्रिया **पांच वर्षों की अस्पष्ट देरी** के बाद शुरू हुई है।
- It is being proudly claimed that it is a **digital Census**.
यह गर्व से कहा जा रहा है कि यह एक **डिजिटल जनगणना** है।
- Senior officials have themselves publicly declared that because of its digital nature, most of the **population enumeration numbers will be available in 2027 itself**.
वरिष्ठ अधिकारियों ने स्वयं सार्वजनिक रूप से कहा है कि इसके डिजिटल स्वरूप के कारण अधिकांश **जनसंख्या आंकड़े 2027 तक उपलब्ध हो जाएंगे**।
- The government's excuses for its **tearing hurry to call this session and conduct delimitation** are evidently hollow.
इस सत्र को बुलाने और **परिसीमन कराने की जल्दबाजी** के लिए सरकार के तर्क स्पष्ट रूप से खोखले हैं।
- Almost exactly a year ago, the Prime Minister announced that the **2027 Census would also be a caste census**.
लगभग एक वर्ष पहले, प्रधानमंत्री ने घोषणा की थी कि **2027 की जनगणना में जाति जनगणना भी शामिल होगी**।
- This was after filing **affidavits in the Supreme Court** and answering questions in Parliament rejecting the idea of conducting a caste census.



यह उस समय हुआ जब सरकार ने सुप्रीम कोर्ट में शपथपत्र दायर किए थे और संसद में प्रश्नों के उत्तर देते हुए जाति जनगणना के विचार को खारिज किया था।

- This was also after the Prime Minister accused Congress leaders calling for a caste census as suffering from what he called “an urban naxal mindset”.
यह तब भी हुआ जब प्रधानमंत्री ने जाति जनगणना की मांग करने वाले कांग्रेस नेताओं को “शहरी नक्सल मानसिकता” से ग्रस्त बताया था।
- Be that as it may, Census 2027 is supposed to enumerate the population by **caste** in order to give greater meaning to **social justice and empowerment**.
जो भी हो, 2027 की जनगणना का उद्देश्य जाति के आधार पर जनसंख्या का आकलन करना है ताकि सामाजिक न्याय और सशक्तिकरण को अधिक प्रभावी बनाया जा सके।
- **Bihar and Telangana** have carried out comprehensive **caste surveys** in their respective States, with the whole process not taking more than **six months**.
बिहार और तेलंगाना ने अपने-अपने राज्यों में व्यापक जाति सर्वेक्षण किए हैं, जिनमें पूरी प्रक्रिया छह महीने से अधिक नहीं लगी।
- It is clear, therefore, that the propaganda that a **caste census will delay the publication of the Census 2027** is just not true.
इसलिए यह स्पष्ट है कि यह प्रचार कि जाति जनगणना से 2027 की जनगणना में देरी होगी, पूरी तरह सही नहीं है।
- In fact, the Prime Minister’s real intention now is to further **delay and derail the caste census**.
वास्तव में, प्रधानमंत्री का वास्तविक उद्देश्य अब जाति जनगणना को और विलंबित करना और बाधित करना है।
- The special session is scheduled to begin on **April 16**.
विशेष सत्र 16 अप्रैल से शुरू होने वाला है।
- Yet till now, there has been no **official proposal shared with MPs** on what exactly the government wants the session to consider.
फिर भी अब तक सांसदों के साथ यह स्पष्ट करने के लिए कोई आधिकारिक प्रस्ताव साझा नहीं किया गया है कि सरकार इस सत्र में क्या विचार करना चाहती है।
- It appears that some **formula for delimitation** is being suggested.
ऐसा प्रतीत होता है कि **परिसीमन के लिए कोई सूत्र** प्रस्तावित किया जा रहा है।
- Any delimitation must be preceded by a **Census exercise** as in the past.
किसी भी परिसीमन से पहले **जनगणना प्रक्रिया** होना आवश्यक है, जैसा कि पहले होता रहा है।
- And it goes without saying that any delimitation involving an **increase in the strength of the Lok Sabha** must be **politically — and not just arithmetically — equitable**.
यह भी स्पष्ट है कि लोकसभा की संख्या में वृद्धि से संबंधित कोई भी परिसीमन राजनीतिक रूप से न्यायसंगत होना चाहिए, न कि केवल गणितीय रूप से।
- States that have been **pioneers in family planning**, and **smaller States**, must not be placed at an **absolute or relative disadvantage**.
जो राज्य परिवार नियोजन में अग्रणी रहे हैं और छोटे राज्य, उन्हें किसी भी प्रकार के पूर्ण या सापेक्ष नुकसान में नहीं डाला जाना चाहिए।
- A proportionate increase may, in fact, result in the **loss of relative influence** because the difference in absolute numbers get magnified.
अनुपातिक वृद्धि वास्तव में सापेक्ष प्रभाव में कमी ला सकती है, क्योंकि संख्या में अंतर और अधिक बढ़ जाता है।

Need for careful consideration

सावधानीपूर्वक विचार की आवश्यकता

- The **Nari Shakti Vandan Adhiniyam, 2023** provides for **reservation within reservation**.
नारी शक्ति वंदन अधिनियम, 2023 में आरक्षण के भीतर आरक्षण का प्रावधान है।
- This means that the one-third of seats reserved for **Scheduled Castes and Scheduled Tribes** respectively will also be reserved for **women**.
इसका अर्थ है कि अनुसूचित जाति और अनुसूचित जनजाति के लिए आरक्षित एक-तिहाई सीटों में भी महिलाओं के लिए आरक्षण होगा।



- During the debate in September 2023, the Leader of the Opposition in the Rajya Sabha had demanded that a similar reservation be also provided for women belonging to the **Other Backward Classes (OBCs)**.
सितंबर 2023 की बहस के दौरान, राज्यसभा में विपक्ष के नेता ने मांग की थी कि इसी प्रकार का आरक्षण अन्य पिछड़ा वर्ग (ओबीसी) की महिलाओं को भी दिया जाए।
- Reservation for OBCs has been already provided for in **higher education and government employment**.
ओबीसी के लिए आरक्षण पहले से ही उच्च शिक्षा और सरकारी नौकरियों में उपलब्ध है।
- The monsoon session of Parliament will begin in **mid-July**.
संसद का मानसून सत्र जुलाई के मध्य में शुरू होगा।
- The heavens will not fall if the government were to call an **all-party meeting after April 29**, to discuss its proposals with the Opposition, allowing time for a **public debate**, and then have the Constitution Amendment Bills considered in the monsoon session.
यदि सरकार 29 अप्रैल के बाद सभी दलों की बैठक बुलाए, विपक्ष के साथ अपने प्रस्तावों पर चर्चा करे, सार्वजनिक बहस के लिए समय दे, और फिर संविधान संशोधन विधेयकों पर मानसून सत्र में विचार करे, तो कोई बड़ी समस्या नहीं होगी।
- The real issue is **delimitation** which, based on the information unofficially available, is **extremely dangerous and an assault on the Constitution itself**.
वास्तविक मुद्दा परिसीमन है, जो उपलब्ध अनौपचारिक जानकारी के अनुसार अत्यंत खतरनाक है और

Between 14 years and the gallows

The Sattankulam trial judge accepted the Sriharan bar in his sentencing order and was forced to the rope: even ordinary life imprisonment, the judge wrote, would let the convicts come out in fourteen years through determined effort

GS II: Polity

LETTER AND SPIRIT

V. Venkatesan

On April 6, the Madurai trial court in Central Bureau of Investigation (CBI) v Sriharan sentenced nine suspended policemen to death. They had killed P. Jayaraj and his son J. Bennix in police custody in June 2020. Judge G. Muthukumar's reasoning is being celebrated as judicial intolerance of uniformed brutality. It is also worth reading as a confession. The case fell within the rarest of rare, he wrote, in terms that left no room for life imprisonment.

The doctrine he was applying comes from *Bachan Singh v State of Punjab* (1980). There a Constitution Bench held that the death sentence may be imposed only in the rarest of rare cases when the "alternative option of life imprisonment is unquestionably foreclosed". The Sattankulam judge believed it was foreclosed. The trial court had only two options. It could send the convicts away for life. Or it could send them to the gallows. What it could not do was occupy the middle ground constitutional courts have fashioned since 2008. That ground is a life sentence quantified in years, twenty or thirty or forty, served without remission. The intermediate sentence has become a fixture of Indian capital jurisprudence. It remains off-limits to the trial courts themselves.

The doctrinal source is the 3:2 majority of the Constitution Bench in *Union of India v V. Sriharan @ Murugan* in December 2015. The majority built on *Swamy Shraddananda v State of Karnataka* (2008). It held that only the High Courts and the Supreme Court could commute death to a fixed-term life sentence beyond statutory remission. Sessions courts, the bench ruled, could not invent a special category of sentencing. The principle has since been reaffirmed in *Kiran v State of Karnataka*



GETTY IMAGES/ISTOCKPHOTO

(2025) and applied in *Sukhdev Yadav v State (NCT of Delhi)* (2025).

The Sattankulam trial judge accepted the bar in his own sentencing order. He cited the December 2025 *Kiran* ruling which held that Sessions Courts cannot bridge "the hiatus between 14 years and death". In paragraph 323 of his order, Judge Muthukumar recorded that the Sessions Court has no power to impose imprisonment for life until death. The defence for the fourth accused had pleaded the same limitation, citing the same authority.

Limitations on Trial Courts

The justification offered in *Sriharan* is surprisingly thin. The majority called the special category an inherent power of constitutional courts, unavailable to trial courts. Yet trial courts already wield the most consequential sentencing power the Code of Criminal Procedure (CrPC) recognises. If they can extinguish life under *Bachan Singh*, why may they not impose the lesser sentence of life without remission?

The Supreme Court has acknowledged

death references as the only safeguard. Trial courts also impose death sentences, subject to confirmation under Section 366 of the Code. Uniformity is achieved through appellate correction, not through pre-emptive denial of jurisdiction.

A sharper critique is empirical. The Square Circle Clinic at NALSAR released its Annual Statistics Report on the death penalty in February. Its findings cut against any easy reading of the Sattankulam result. In *Manoj v State of Madhya Pradesh* (2022), the Supreme Court directed trial courts to gather information about the prisoner's background, mental health and prison conduct before imposing a death sentence. These guidelines are routinely ignored. *Vasanta Sampat Dupare* (2025) elevated compliance with *Manoj* to a fair trial right under Article 21, without changing trial court practice.

At the same time, the special category *Shraddananda* devised has become the rule rather than the exception at the appellate level. All five Supreme Court commutations in 2025 went to whole-life without remission.

The Sattankulam verdict will travel to the Madras High Court on confirmation. The Madurai Bench has followed this case since taking *suo motu* cognisance in June 2020. It will have the option *Sriharan* denied the trial judge. It may convert the sentences into fixed-term life imprisonment without remission. That outcome would expose the contradiction. A special category trial courts cannot use is becoming the default above them.

According to the Square Circle Clinic's report, most trial courts impose death sentences without the mitigation hearings *Manoj* demands. The Sattankulam judge did hold them, and the architecture failed him anyway. Extending the special category of fixed-term sentencing to him would appear to remedy one rung of a broken ladder. Yet reconsideration of the post-*Bachan Singh* edifice would still be overdue.

(The author is a journalist and legal researcher.)

THE GIST

The death sentences for the Sattankulam custodial killings highlight a conflict between the "rarest of rare" doctrine and legal restrictions, with the trial judge choosing the death penalty over an inadequate life sentence because judicial precedents barred them from imposing a fixed-term, non-remittable sentence.

Critics argue this outcome highlights a "broken ladder" in Indian jurisprudence, where the Supreme Court's *Sriharan* decision forces trial courts into binary sentencing (death or '14-year jail') by withholding the "middle ground" of long-term imprisonment, a tool now default at the appellate level.

संविधान पर सीधा आघात है।

13A. Between 14 years and the gallows
14 वर्षों और फांसी के बीच



- The Sattankulam trial judge accepted the Sriharan bar in his sentencing order and was forced to the rope; even ordinary life imprisonment, the judge wrote, would let the convicts come out in fourteen years through determined effort
सत्तानकुलम ट्रायल के न्यायाधीश ने अपने दंडादेश में श्रीहरन प्रतिबंध को स्वीकार किया और फांसी देने के लिए बाध्य हुए; न्यायाधीश ने लिखा कि साधारण आजीवन कारावास भी दोषियों को दृढ़ प्रयास के माध्यम से चौदह वर्षों में बाहर आने की अनुमति दे सकता है
- On April 6, the Madurai trial court in Central Bureau of Investigation (CBI) v Sridhar sentenced nine suspended policemen to death.
6 अप्रैल को मदुरै की निचली अदालत ने केंद्रीय अन्वेषण ब्यूरो बनाम श्रीधर मामले में नौ निलंबित पुलिसकर्मियों को मृत्युदंड सुनाया।
- They had killed P. Jayaraj and his son J. Bennix in police custody in June 2020.
उन्होंने जून 2020 में पी. जयराज और उनके पुत्र जे. बेनिक्स की पुलिस हिरासत में हत्या कर दी थी।
- Judge G. Muthukumaran's reasoning is being celebrated as judicial intolerance of uniformed brutality.
न्यायाधीश जी. मुथुकुमारन का निर्णय वर्दीधारी क्रूरता के प्रति न्यायिक असहिष्णुता के रूप में सराहा जा रहा है।
- It is also worth reading as a confession.
इसे एक स्वीकारोक्ति के रूप में भी पढ़ा जाना चाहिए।
- The case fell within the rarest of rare, he wrote, in terms that left no room for life imprisonment.
उन्होंने लिखा कि यह मामला 'दुर्लभतम में दुर्लभ' श्रेणी में आता है, जिसमें आजीवन कारावास की कोई गुंजाइश नहीं है।
- The doctrine he was applying comes from **Bachan Singh v State of Punjab (1980)**.
जिस सिद्धांत का उन्होंने प्रयोग किया, वह **बचन सिंह बनाम पंजाब राज्य (1980)** से आता है।
- **There a Constitution Bench held that the death sentence may be imposed only in the rarest of rare cases when the "alternative option of life imprisonment is unquestionably foreclosed"**.
उसमें संविधान पीठ ने कहा था कि मृत्युदंड केवल **दुर्लभतम मामलों में** ही दिया जा सकता है जब **आजीवन कारावास का विकल्प पूरी तरह समाप्त हो जाए**।
- The Sattankulam judge believed it was foreclosed.
सत्तानकुलम के न्यायाधीश ने माना कि यह विकल्प समाप्त हो चुका है।
- The trial court had only **two options**.
निचली अदालत के पास केवल **दो विकल्प** थे।
- It could send the convicts away for life.
वह दोषियों को **आजीवन कारावास** दे सकती थी।
- Or it could send them to the gallows.
या उन्हें **फांसी की सजा** दे सकती थी।
- What it could not do was occupy the **middle ground** constitutional courts have fashioned since 2008.
वह **मध्य मार्ग** नहीं अपना सकती थी, जिसे 2008 के बाद संवैधानिक अदालतों ने विकसित किया है।
- That ground is a **life sentence quantified in years**, served without remission.
यह मध्य मार्ग **निर्धारित वर्षों का आजीवन कारावास** है, जिसमें कोई रिहाई नहीं होती।
- The intermediate sentence has become a fixture of **Indian capital jurisprudence**.
यह मध्यवर्ती सजा अब **भारतीय मृत्युदंड न्यायशास्त्र** का हिस्सा बन गई है।
- It remains off-limits to the trial courts themselves.
लेकिन यह अभी भी **निचली अदालतों के लिए उपलब्ध नहीं है**।
- The doctrinal source is the 3:2 majority of the Constitution Bench in **Union of India v V. Sriharan @ Murugan (2015)**.
इस सिद्धांत का स्रोत **भारत संघ बनाम वी. श्रीहरन (2015)** में 3:2 बहुमत का निर्णय है।
- The majority built on **Swamy Shraddananda v State of Karnataka (2008)**.
यह निर्णय **स्वामी श्रद्धानंद बनाम कर्नाटक राज्य (2008)** पर आधारित था।
- It held that only the **High Courts and the Supreme Court** could commute death to a fixed-term life sentence beyond statutory remission.
इसमें कहा गया कि केवल **उच्च न्यायालय और सर्वोच्च न्यायालय** ही मृत्युदंड को निश्चित अवधि के आजीवन कारावास में बदल सकते हैं।



- Sessions courts could not invent a special category of sentencing.
सेशन अदालतें विशेष सजा श्रेणी नहीं बना सकतीं।
- The principle has since been reaffirmed in **Kiran v State of Karnataka (2025)** and applied in **Sukhdev Yadav v State (NCT of Delhi) (2025)**.
इस सिद्धांत की पुष्टि किरण बनाम कर्नाटक राज्य (2025) और सुखदेव यादव बनाम दिल्ली राज्य (2025) में की गई।
- The Sattankulam trial judge accepted the bar in his own sentencing order.
सत्तानकुलम के न्यायाधीश ने अपने आदेश में इस सीमा को स्वीकार किया।
- He cited the **Kiran ruling (2025)** which held that Sessions Courts cannot bridge the gap between **14 years and death**.
उन्होंने किरण फैसले (2025) का हवाला दिया, जिसमें कहा गया कि सेशन अदालतें 14 वर्ष और मृत्युदंड के बीच की दूरी को नहीं भर सकतीं।
- In paragraph 323, he recorded that the Sessions Court has no power to impose **imprisonment for life until death**.
अपने आदेश के अनुच्छेद 323 में उन्होंने दर्ज किया कि सेशन अदालत को मृत्यु तक आजीवन कारावास देने का अधिकार नहीं है।
- The defence for the fourth accused had pleaded the same limitation.
चौथे आरोपी के बचाव पक्ष ने भी यही सीमा बताई थी।

Limitations on Trial Courts

निचली अदालतों की सीमाएँ

- The justification offered in **Sriharan** is surprisingly thin.
श्रीहरन मामले में दिया गया औचित्य काफी कमजोर है।
- The majority called the special category an inherent power of **constitutional courts**, unavailable to trial courts.
बहुमत ने इसे संवैधानिक अदालतों की अंतर्निहित शक्ति बताया, जो निचली अदालतों को उपलब्ध नहीं है।
- Yet trial courts already wield the most consequential sentencing power under the **Code of Criminal Procedure (CrPC)**.
फिर भी निचली अदालतों के पास पहले से ही दंड प्रक्रिया संहिता के तहत सबसे महत्वपूर्ण सजा देने की शक्ति है।
- If they can extinguish life under **Bachan Singh**, why may they not impose life without remission?
यदि वे बचन सिंह मामले के तहत मृत्युदंड दे सकती हैं, तो बिना रिहाई के आजीवन कारावास क्यों नहीं दे सकतीं?
- The Supreme Court has acknowledged the trap.
सर्वोच्च न्यायालय ने इस समस्या को स्वीकार किया है।
- In **Kiran**, the Bench described the gap between ordinary life imprisonment and death.
किरण मामले में न्यायालय ने सामान्य आजीवन कारावास और मृत्युदंड के बीच के अंतर को बताया।
- The special category was devised to **bridge the gap**.
इस विशेष श्रेणी को इस अंतर को भरने के लिए बनाया गया था।
- Sriharan then withheld this option from the trial courts most likely to need it.
लेकिन श्रीहरन निर्णय ने यह विकल्प उन निचली अदालतों से छीन लिया जिन्हें इसकी सबसे अधिक आवश्यकता थी।
- The consequence in **Sattankulam** is plain.
सत्तानकुलम मामले में परिणाम स्पष्ट है।
- **Even ordinary life imprisonment, the judge wrote, would let the convicts come out in fourteen years through determined effort**.
न्यायाधीश ने लिखा कि सामान्य आजीवन कारावास भी दोषियों को चौदह वर्षों में बाहर आने का अवसर दे सकता है।
- Section **433A of the CrPC** fixed that minimum.
दंड प्रक्रिया संहिता की धारा 433ए ने यह न्यूनतम अवधि तय की है।
- He found the interval derisory for the brutality before him.
उन्होंने इस अवधि को अपराध की क्रूरता के संदर्भ में अत्यंत अपर्याप्त पाया।



- **Sriharan** denied him the calibrated alternative.
श्रीहरन निर्णय ने उन्हें संतुलित विकल्प से वंचित कर दिया।
- He could not direct, say, **thirty years of actual incarceration without remission**, a sentence second only to death.
वे बिना रिहाई के तीस वर्षों के वास्तविक कारावास जैसी सजा नहीं दे सकते थे, जो मृत्युदंड के बाद सबसे कठोर होती है।
- He could only choose between a sentence he considered inadequate and the rope.
उनके पास केवल अपर्याप्त सजा और फांसी के बीच चयन का विकल्प था।
- He chose the rope.
उन्होंने फांसी को चुना।
- The defenders of **Sriharan** must be heard.
श्रीहरन फैसले के समर्थकों की बात भी सुनी जानी चाहिए।
- Uniformity, they argue, requires the special category to remain with **constitutional courts**.
उनका तर्क है कि एकरूपता के लिए यह विशेष श्रेणी केवल संवैधानिक अदालतों के पास ही रहनी चाहिए।
- They warn that sessions judges may impose **idiosyncratic non-remittable terms**.
वे कहते हैं कि सेशन न्यायाधीश मनमाने गैर-रिहाई योग्य दंड दे सकते हैं।
- They invoke **appellate scrutiny in death references** as the safeguard.
वे मृत्युदंड मामलों में अपीलीय समीक्षा को सुरक्षा उपाय मानते हैं।
- Trial courts also impose death sentences, subject to confirmation under **Section 366 of the Code**.
निचली अदालतें भी मृत्युदंड देती हैं, जिसे धारा 366 के तहत पुष्टि आवश्यक होती है।
- Uniformity is achieved through **appellate correction**, not denial of jurisdiction.
एकरूपता अपीलीय सुधार से प्राप्त होती है, अधिकार से वंचित करने से नहीं।
- A sharper critique is **empirical**.
एक अधिक तीखा आलोचनात्मक दृष्टिकोण आंकड़ों पर आधारित है।
- The **Square Circle Clinic at NALSAR** released its Annual Statistics Report on the death penalty in February.
नालसर के स्क्वायर सर्कल क्लिनिक ने फरवरी में मृत्युदंड पर वार्षिक रिपोर्ट जारी की।
- Its findings cut against any easy reading of the Sattankulam result.
इसके निष्कर्ष सत्तानकुलम फैसले की सरल व्याख्या को चुनौती देते हैं।
- In **Manoj v State of Madhya Pradesh (2022)**, the Supreme Court directed trial courts to gather information about the prisoner's **background, mental health and prison conduct**.
मनोज बनाम मध्य प्रदेश (2022) में सर्वोच्च न्यायालय ने निचली अदालतों को कैदी के पृष्ठभूमि, मानसिक स्वास्थ्य और जेल व्यवहार की जानकारी एकत्र करने का निर्देश दिया।
- These guidelines are routinely ignored.
इन दिशानिर्देशों की अक्सर अनदेखी की जाती है।
- **Vasanta Sampat Dupare (2025)** elevated compliance with Manoj to a **fair trial right under Article 21**.
वसंत संपत दुपारे (2025) ने इसे अनुच्छेद 21 के तहत निष्पक्ष सुनवाई का अधिकार बना दिया।
- At the same time, the special category devised in **Shraddananda** has become the rule at the appellate level.
इसी समय, श्रद्धानंद मामले की विशेष श्रेणी अपीलीय स्तर पर सामान्य नियम बन गई है।
- All five Supreme Court commutations in 2025 went to **whole-life without remission**.
2025 में सर्वोच्च न्यायालय द्वारा दिए गए सभी परिवर्तनों में बिना रिहाई के आजीवन कारावास दिया गया।
- The Sattankulam verdict will travel to the **Madras High Court** on confirmation.
सत्तानकुलम का फैसला मद्रास उच्च न्यायालय में पुष्टि के लिए जाएगा।
- The Madurai Bench has followed this case since taking **suo motu cognisance in June 2020**.
मदुरै पीठ ने जून 2020 में स्वप्रेरणा से संज्ञान लेने के बाद से इस मामले पर नजर रखी है।
- It will have the option Sriharan denied the trial judge.
इसके पास वह विकल्प होगा जो निचली अदालत को श्रीहरन निर्णय के कारण नहीं मिला।
- It may convert the sentences into **fixed-term life imprisonment without remission**.
यह सजा को निर्धारित अवधि के बिना रिहाई वाले आजीवन कारावास में बदल सकता है।
- That outcome would expose the contradiction.
यह परिणाम इस विरोधाभास को उजागर करेगा।



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>
YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>
CONTACT: 9971932488



- A special category trial courts cannot use is becoming the default above them. जिस विशेष श्रेणी का उपयोग निचली अदालतें नहीं कर सकतीं, वही ऊपर की अदालतों में सामान्य बन रही है।
- According to the Square Circle Clinic's report, most trial courts impose death sentences without the **mitigation hearings required in Manoj**. रिपोर्ट के अनुसार, अधिकांश निचली अदालतें **मनोज मामले में आवश्यक शमन सुनवाई** के बिना मृत्युदंड देती हैं।
- The Sattankulam judge did hold them, and the architecture failed him anyway. सत्तानकुलम के न्यायाधीश ने इन्हें किया, फिर भी व्यवस्था ने उनका साथ नहीं दिया।
- Extending the special category of **fixed-term sentencing** to him would remedy one rung of a broken ladder. उन्हें **निर्धारित अवधि की सजा** देने का अधिकार देना इस समस्या का आंशिक समाधान हो सकता है।
- Yet reconsideration of the **post-Bachan Singh framework** would still be overdue. फिर भी **बचन सिंह के बाद की व्यवस्था** की पुनः समीक्षा अब भी आवश्यक है।

GS Paper II: International Relations		13 April 2026
TOPICS COVERED		
13A	China giving fictitious names to Indian territory, says Centre चीन भारतीय क्षेत्र को काल्पनिक नाम दे रहा है, केंद्र का बयान	
13A	China 'to boost Taiwan exchanges' as Opposition leader ends visit चीन 'ताइवान के साथ आदान-प्रदान बढ़ाएगा' जब विपक्षी नेता का दौरा समाप्त हुआ	



China giving fictitious names to Indian territory, says Centre

GS II: IR

Kaifol Bhattacharjee

NEW DELHI

India on Sunday reiterated its rejection of China's attempts at assigning "fictitious names to places which form part of the territory of India". The External Affairs Ministry, in a statement, said such attempts were "mischievous", adding such actions "detract" ongoing normalisation process in the bilateral relationship.

"Such attempts by China at introducing false claims and manufacturing baseless narratives cannot alter the undeniable reality that these places and territories, including Arunachal Pradesh, were, are, and will always remain an integral and inalienable part of India," Ministry spokesperson Randhir Jaiswal said.

"These actions by the Chinese side detract from ongoing efforts to stabilise and normalise bilateral ties. China should refrain from actions which inject negativity into relations and undermine efforts to create better understanding," said Mr. Jaiswal.

India last year had protested after China created He'an and Hekang counties in Hotan (Khotan) Prefecture, saying that parts of these territories fell within the Union Territory of La-

China has created a new county in the restive Xinjiang province, named Cenling, near PoK

dakh. He'an included parts of the Aksai Chin plateau, which has been in focus because of the long-running India-China border issue. Continuing with this process, China has created a new county in the restive Xinjiang province, named Cenling. Cenling was announced on March 26 by the Xinjiang Uyghur Autonomous Region government and as of now details of its administrative divisions and precise boundaries are not known.

Cenling is located near the Karakoram mountain range, which falls in the vicinity of Pakistan-occupied Kashmir (PoK) and Afghanistan's Wakhan corridor. The apparent aim behind creating the Cenling county so close to PoK is to ensure security of Xinjiang, which is dealing with Uyghur insurgency and terrorist groups such as the East Turkestan Islamic Movement (ETIM). This region is also the starting point of China-Pakistan Economic Corridor, a project that India has criticised as it violates India's sovereignty rights over PoK.

13A. China giving fictitious names to Indian territory, says Centre चीन भारतीय क्षेत्र को काल्पनिक नाम दे रहा है, केंद्र का बयान

Continuing with this process, China has created a new county in the restive Xinjiang province, named Cenling.

इस प्रक्रिया को जारी रखते हुए, चीन ने शिनजियांग प्रांत में एक नया काउंटी **Cenling** बनाया है।

Cenling was announced on March 26 by the **Xinjiang Uyghur Autonomous Region** government and as of now details of its administrative divisions and precise boundaries are not known.

Cenling की घोषणा 26 मार्च को **शिनजियांग उइगर स्वायत्त क्षेत्र सरकार** द्वारा की गई, और अभी इसकी प्रशासनिक सीमाओं का पूरा विवरण उपलब्ध नहीं है।

Cenling is located near the Karakoram mountain range, which falls in the vicinity of Pakistan-occupied Kashmir (PoK) and **Afghanistan's Wakhan corridor**.

Cenling काराकोरम पर्वत श्रृंखला के पास स्थित है, जो पाकिस्तान अधिकृत कश्मीर (PoK) और अफगानिस्तान के वाखान कॉरिडोर के निकट है।

The apparent aim behind creating the Cenling county so close to PoK is to ensure security of Xinjiang, which is dealing with **Uyghur insurgency** and terrorist groups such as the East Turkestan Islamic Movement (ETIM).

PoK के पास **Cenling काउंटी** बनाने का उद्देश्य **शिनजियांग की सुरक्षा** सुनिश्चित करना है, जो **उइगर विद्रोह** और **ETIM** जैसे आतंकी समूहों से जूझ रहा है।

BEIJING

China 'to boost Taiwan exchanges' as Opposition leader ends visit



GS II: IR

AFF

China will implement a series of measures to enhance exchanges with Taiwan, Beijing said on Sunday on the final day of a rare visit by Kuomintang (KMT) chairperson Cheng Li-wun. Beijing released a list of 10 measures to "promote the peaceful development of cross-strait relations", *Xinhua* said. AFP

13A. China 'to boost Taiwan exchanges' as Opposition leader ends visit

चीन 'ताइवान के साथ आदान-प्रदान



बढ़ाएगा' जब विपक्षी नेता का दौरा समाप्त हुआ

- China will implement a series of measures to enhance exchanges with **Taiwan**, Beijing said on Sunday on the final day of a rare visit by **Kuomintang (KMT)** chairperson **Cheng Li-wun**. चीन ताइवान के साथ आदान-प्रदान बढ़ाने के लिए कई कदम उठाएगा, बीजिंग ने रविवार को कुओमिन्तांग (KMT) अध्यक्ष चेंग ली-वुन की दुर्लभ यात्रा के अंतिम दिन कहा।
- Beijing released a list of 10 measures to “promote the peaceful development of cross-strait relations”, **Xinhua** said. बीजिंग ने क्रॉस-स्ट्रेट संबंधों के शांतिपूर्ण विकास को बढ़ावा देने के लिए 10 उपायों की सूची जारी की, ऐसा शिन्हुआ ने बताया।

GS Paper III: Economy		13 April 2026
TOPICS COVERED		
13A	Why India's established elite is afraid of taking risks भारत का स्थापित अभिजात वर्ग जोखिम लेने से क्यों डरता है	
13A	Tourism and trade पर्यटन और व्यापार	
13A	Tapping fisheries in reservoirs जलाशयों में मत्स्य संसाधनों का दोहन	
13A	Are biomass stoves a cleaner, cheaper alternative to LPG? क्या बायोमास चूल्हे एलपीजी का अधिक स्वच्छ और सस्ता विकल्प हैं?	
13A	No, life insurance isn't like fixed deposit नहीं, जीवन बीमा फिक्स्ड डिपॉजिट जैसा नहीं होता	
13A	Why deposit tokens will shape the next trillion डिपॉजिट टोकन अगला ट्रिलियन कैसे आकार देंगे	
13A	All the light we cannot see जो रोशनी हम नहीं देख सकते	



Tourism and trade

MQB

Consensus is vital in leveraging the strategic importance of Nicobar

GS III: Economy & Environment

The Union government's ₹92,000 crore mega-infrastructure project for the holistic development of the Great Nicobar Island (GNI) by building it up as a port and tourism-led economy has gathered speed in the last six months, even as concerns remain about its impact on the Island's ecology and the rights of local populations, the Nicobarese and the Shompen – two indigenous tribal groups. The Andaman and Nicobar Islands administration has notified a draft master plan for the project. Apart from the International Container Transshipment Port (ICTP), the airport, and power plants, the draft master plan envisions developing the GNI as a "seaside destination in a pristine, unspoiled, protected environment", outlining plans for business, adventure, biodiversity tourism, family entertainment, amusement parks, etc., along with adequate social infrastructure for healthcare, education, and livelihood. The draft is planned for a projected population of over 3.36 lakh by 2055, by which time the expected tourist inflow will be a million a year. Over 70% of the direct employment the government hopes to create will be in tourism and allied sectors. The current population of the GNI is a little less than 10,000. This transformation of the GNI, aided by the ICTP, is crucial to leverage the "strategic importance" of the Island's location at the western entrance to the Malacca Strait. The draft plan has said the port will help India achieve its "aims to capture a significant share in global sea trade".

But while the administration has sought public suggestions and objections for 30 days, it remains unclear till when this window will remain open, given that the draft does not mention when it was notified. This draft plan follows another draft plan to relocate local Nicobarese communities to make way for the project. The two plans seemingly contradict each other with regard to where existing populations may be relocated, which has renewed fears among these groups. These communities have been opposing the project's clearance since 2022, alleging that their forest rights had not been settled. While the National Green Tribunal has set aside concerns about the project's impact on the GNI's biodiversity by citing its "strategic importance", a challenge to the project's clearances remains in the Calcutta High Court. Some have also questioned the project's commercial and naval merits. Considering that the project aims to irreversibly alter the demography, and ecology of the GNI, the most prudent path for the government is to take the time needed to build a more holistic consensus over it.

13A. Tourism and trade पर्यटन और व्यापार

- Consensus is vital in leveraging the strategic importance of Nicobar
Nicobar के रणनीतिक महत्व का लाभ उठाने के लिए सहमति अत्यंत आवश्यक है

- The Union government's ₹92,000 crore mega-infrastructure project for the holistic development of the Great Nicobar Island (GNI) केंद्र सरकार की ₹92,000 करोड़ की मेगा अवसंरचना परियोजना, जिसका उद्देश्य ग्रेट निकोबार द्वीप का समग्र विकास है

- The Union government's ₹92,000 crore mega-infrastructure project for the holistic development of the Great Nicobar Island (GNI) by building it up as a port and tourism-led economy has gathered speed in the last six months, even as concerns remain about its impact on the Island's ecology and the rights of local populations, the Nicobarese and the Shompen – two indigenous tribal groups.

केंद्र सरकार की ₹92,000 करोड़ की मेगा अवसंरचना परियोजना, जिसका उद्देश्य ग्रेट निकोबार द्वीप का बंदरगाह और पर्यटन आधारित अर्थव्यवस्था के रूप में विकास करना है, पिछले छह महीनों में तेज हुई है, हालांकि द्वीप की पर्यावरणीय स्थिति और स्थानीय आबादी के अधिकारों, विशेष रूप से निकोबारी और शोमपेन — दो स्वदेशी जनजातीय समूहों पर इसके प्रभाव को लेकर चिंताएं बनी हुई हैं।

- Apart from the International Container Transshipment Port (ICTP), the airport, and power plants, the draft master plan envisions developing the GNI as a "seaside destination in a pristine, unspoiled, protected environment", outlining plans for business, adventure, biodiversity tourism, family entertainment, amusement parks, etc., along with adequate social infrastructure for healthcare, education, and livelihood.

अंतरराष्ट्रीय कंटेनर ट्रांसशिपमेंट पोर्ट, हवाई अड्डा और बिजली संयंत्रों के अलावा, मसौदा मास्टर प्लान ग्रेट निकोबार को एक "स्वच्छ, अछूते और संरक्षित वातावरण में समुद्री पर्यटन स्थल" के रूप में विकसित करने की कल्पना करता है, जिसमें व्यवसाय, साहसिक, जैव विविधता पर्यटन, पारिवारिक



मनोरंजन, मनोरंजन पार्क आदि के साथ-साथ स्वास्थ्य, शिक्षा और आजीविका के लिए सामाजिक अवसंरचना शामिल है।

- The draft is planned for a projected population of over **3.36 lakh by 2055**, by which time the expected tourist inflow will be **a million a year**.

यह मसौदा 2055 तक 3.36 लाख से अधिक जनसंख्या को ध्यान में रखकर तैयार किया गया है, तब तक हर वर्ष लगभग दस लाख पर्यटकों के आने की संभावना है।

- Over **70% of the direct employment** the government hopes to create will be in **tourism and allied sectors**.

सरकार द्वारा सृजित किए जाने वाले 70% से अधिक प्रत्यक्ष रोजगार पर्यटन और संबंधित क्षेत्रों में होंगे।

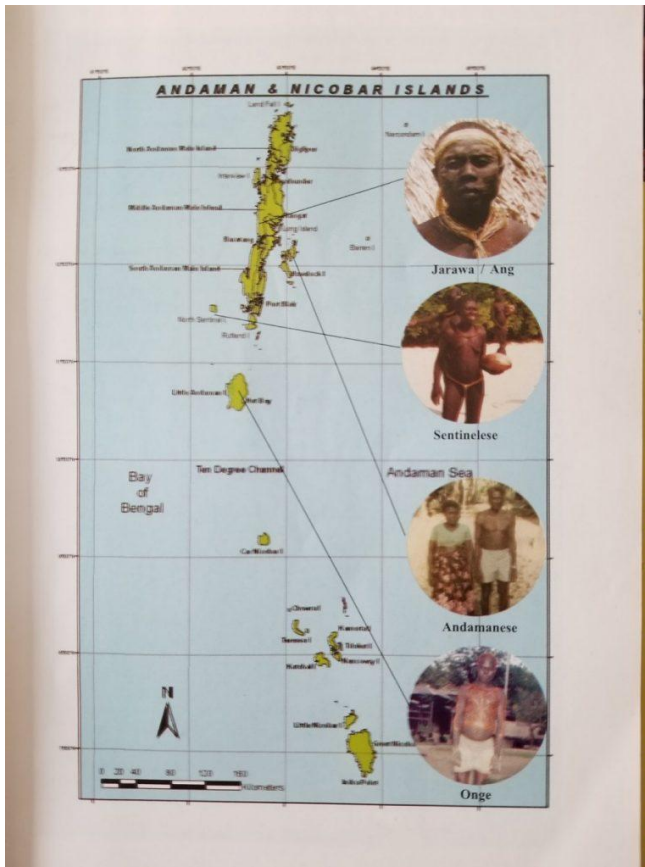
- While the **National Green Tribunal** has set aside concerns about the project's impact on the GNI's biodiversity by citing its "**strategic importance**", a challenge to the project's clearances remains in the **Calcutta High Court**.

जहाँ राष्ट्रीय हरित अधिकरण ने परियोजना के जैव विविधता पर प्रभाव संबंधी चिंताओं को इसकी रणनीतिक महत्ता का हवाला देकर खारिज कर दिया है, वहीं परियोजना की मंजूरी को कलकत्ता उच्च न्यायालय में चुनौती दी जा रही है।

Major Tribes of Andaman and Nicobar Islands

- These tribes are broadly classified into **Negrito tribes (Andaman group)** and **Mongoloid tribes (Nicobar group)**.

Andaman Group (Negrito Tribes)



1. Great Andamanese

- Once the largest tribe, now reduced to a very small population
- Reside mainly in **Strait Island**
- Dependent on government support
- Language and culture are rapidly declining

2. Jarawa





- Semi-nomadic hunter-gatherers
- Live in forests of South and Middle Andaman
- Known for **resisting outside contact for long**
- Now limited controlled interaction with outsiders

3. Onge

- Inhabit **Little Andaman Island**
- Practice hunting and gathering
- Population is very low
- Highly dependent on government welfare

4. Sentinelese



6

- Live on **North Sentinel Island**
- Most **isolated** tribe in the world
- Completely reject outside contact
- Protected under strict government laws
- Nicobar Group (Mongoloid Tribes)**

5. Nicobarese





7

- Largest tribal group in Nicobar Islands
- Practice agriculture and animal husbandry
- Relatively more developed and integrated
- Follow Christianity along with traditional beliefs

6. Shompen



6

- Inhabit **Great Nicobar Island**
- Semi-nomadic and reclusive
- Limited contact with outsiders
- Depend on forest resources

PATRIOTIC IAS



Tapping fisheries in reservoirs

GS III: Economy

Budget 2026-27 highlights undertaking of initiatives for integrated development of fisheries in 500 reservoirs and Amrit Sarovars (ponds developed under Mission Amrit Sarovar) to enhance income of fish farmers. This will also involve strengthening market access to fish farmer-producer organisations and cooperatives.

India is the second largest fish producer in the world. Now, it is also the second largest globally in aquaculture production. The country has witnessed a 106% increase in the national fish production since 2013-14 that stands at a record 197.75 lakh tonnes in 2024-25. Interestingly, 75% of our fish production comes from inland fisheries that include freshwater, brackish, and saline water resources. Reservoirs, spread over an area of more than 31.50 lakh hectares, are a major source of freshwater fisheries and aquaculture. Fish production from these water bodies is approximately 18 lakh tonnes.

Located primarily in eastern, central and the peninsular regions, these reservoirs contribute to the livelihood of millions of fish farmers. This is especially true for economically backward and water-scarce regions where they play a crucial role in providing direct/indirect employment and food security.

While Madhya Pradesh has the maximum area under reservoirs (about six lakh hectares), Tamil Nadu has the highest number of reservoirs at over 8,000.

A key factor in the rise of the country's fish production is the increase in fish productivity in reservoirs to 100 kg per hectare compared to 50 kg in 2006. This has been made possible by application of cage culture technology with sufficient stocking of quality seed backed by requisite budgetary support under flagship programmes such as Blue Revolution (BR) and the Pradhan Mantri Matsya Sampada Yojana (PMMSY). While the Indian major



Abhilaksh Likhhi

Union Secretary,
Department of
Fisheries,
Government of India

The rise in the country's fish production has been made possible by the application of cage culture technology

carps (Catla, Rohu, Mrigal) form the core species for stocking, need-based stocking of additional species (Tilapia, Pangasius, etc.), in consultation with beneficiaries, is provided under the above programmes.

These reservoir cages, floating or stationary, are typically made of synthetic netting or mesh with a structure for support. The mesh allows for natural water flow, ensuring oxygen and nutrient exchange with the surrounding environment. These cages are anchored to the bottom or suspended from buoys to maintain their position and depth. This facilitates easier feeding, monitoring, and disease management. Further, to promote species diversification, in addition to rectangular cages, circular cages are increasingly being deployed.

Bimal Chandra Oran is a fish farmer from Saraikela district in Jharkhand who has taken up aquaculture for his livelihood in the Chandil reservoir ecosystem. As a member of the Chandil Bandh Visthapit Matsyajibhi Swalambhi Sahkar Samiti (CBVMSS), he set up two cages and was provided subsidised seed and feed inputs. This was followed by a series of capacity-building trainings to upgrade his skills. Over the years, he has cultured Tilapia and Pangasius species through the reservoir cage technology. Backed by marketing support through cooperative society, he has been able to produce three tonnes of fish, thereby achieving an annual turnover of more than ₹3 lakh.

An Indian Council of Agricultural Research (ICAR)-Central Institute of Inland Fisheries (CI-FRI) study envisions that aquaculture productivity can go up to 300 kg from the current 100 kg per hectare in such reservoirs. To achieve this potential, experts suggest adopting a value chain approach through the integrated development of these reservoirs. This includes converged setting up

of hatcheries, feed mills, storage sheds, ice plants, berthing platforms, auction centres, and marketing retail outlets, and ensuring availability of boats and refrigerated trucks.

To ground the above value chain approach, a cluster-based strategy is being implemented by the National Fisheries Development Board (NFDB) to enhance the competitiveness of the reservoir ecosystem through end-to-end solutions. In line with this strategy, recently a reservoir cluster has been announced for the Halalai and Indra Sagar dams in Madhya Pradesh. The effort will be, first and foremost, to identify sectoral gaps in fisheries production, productivity, and processing capacities within this reservoir ecosystem. Critical, for instance, herein will be the assessment of multiplicity of agencies owning fishing rights, which sometimes poses challenges in data gathering. And without doubt, it will also entail enhancing economies of scale for local fish farmers by their aggregation through cooperatives and fish farmer-producer organisations. Such reservoir clusters will be replicated in other States and Union Territories as well.

In addition, Mission Amrit Sarovar is being implemented with the core vision of conserving surface and underground water in district ponds. A key innovation herein is mapping of user groups for pond management through community participation. Each Amrit Sarovar is designed to have a pondage area of minimum one acre with a holding capacity of 10,000 cubic metres. The Amrit Sarovar at Dine Dite Rijo in Upper Subansiri district of Arunachal Pradesh is a success story of a retention basin that has been successfully used for stocking and aquaculture of ornamental fishes. Tapping fisheries in reservoirs and Amrit Sarovars aligns with the Viksit Bharat@2047 vision to empower fishermen families to thrive and contribute to the nation's Blue Revolution.

13A. Tapping fisheries in reservoirs

जलाशयों में मत्स्य संसाधनों का दोहन

- **Budget 2026-27 highlights undertaking of initiatives for integrated development of fisheries in 500 reservoirs and Amrit Sarovars**
बजट 2026-27 में 500 जलाशयों और अमृत सरोवरों में मत्स्य क्षेत्र के एकीकृत विकास हेतु पहल
- **Budget 2026-27 highlights undertaking initiatives for integrated development of fisheries in 500 reservoirs and Amrit Sarovars** (ponds developed under Mission Amrit Sarovar) to enhance income of fish farmers.



बजट 2026-27 में मत्स्य क्षेत्र के एकीकृत विकास हेतु 500 जलाशयों और अमृत सरोवरों (मिशन अमृत सरोवर के तहत विकसित तालाब) में पहल का उल्लेख किया गया है ताकि मछुआरों की आय बढ़ाई जा सके।

- This will also involve strengthening **market access** to fish farmer-producer organisations and cooperatives.

इसमें मछुआरा उत्पादक संगठनों और सहकारी समितियों के लिए बाजार पहुंच को मजबूत करना भी शामिल होगा।

- **India is the second largest fish producer in the world.**
भारत विश्व का दूसरा सबसे बड़ा मछली उत्पादक देश है।
- **Now, it is also the second largest globally in aquaculture production.**
अब यह जलीय कृषि उत्पादन में भी विश्व में दूसरा स्थान रखता है।
- The country has witnessed a **106% increase in the national fish production since 2013-14** that stands at a record **197.75 lakh tonnes in 2024-25**.
देश ने 2013-14 से राष्ट्रीय मछली उत्पादन में 106% वृद्धि दर्ज की है, जो 2024-25 में 197.75 लाख टन के रिकॉर्ड स्तर पर पहुंच गया है।
- **Interestingly, 75% of our fish production comes from inland fisheries that include freshwater, brackish, and saline water resources.**
दिलचस्प बात यह है कि हमारे कुल मछली उत्पादन का 75% अंतर्देशीय मत्स्य पालन से आता है, जिसमें मीठा, खारा और लवणीय जल शामिल है।
- **Reservoirs, spread over an area of more than 31.50 lakh hectares, are a major source of freshwater fisheries and aquaculture.**
31.50 लाख हेक्टेयर से अधिक क्षेत्र में फैले जलाशय मीठे पानी के मत्स्य पालन और जलीय कृषि का प्रमुख स्रोत हैं।
- **Fish production from these water bodies is approximately 18 lakh tonnes.**
इन जल निकायों से लगभग 18 लाख टन मछली उत्पादन होता है।
- Located primarily in **eastern, central and the peninsular regions**, these reservoirs contribute to the **livelihood of millions of fish farmers**.
मुख्य रूप से पूर्वी, मध्य और प्रायद्वीपीय क्षेत्रों में स्थित ये जलाशय लाखों मछुआरों की आजीविका में योगदान देते हैं।
- This is especially true for **economically backward and water-scarce regions** where they play a crucial role in providing **employment and food security**.
यह विशेष रूप से आर्थिक रूप से पिछड़े और जल-संकट वाले क्षेत्रों में सत्य है, जहां ये रोजगार और खाद्य सुरक्षा प्रदान करने में महत्वपूर्ण भूमिका निभाते हैं।
- **While Madhya Pradesh has the maximum area under reservoirs (about six lakh hectares), Tamil Nadu has the highest number of reservoirs at over 8,000.**
जहां मध्य प्रदेश में जलाशयों का सबसे अधिक क्षेत्र (लगभग छह लाख हेक्टेयर) है, वहीं तमिलनाडु में जलाशयों की संख्या सबसे अधिक (8000 से अधिक) है।
- A key factor in the rise of the country's fish production is the increase in **fish productivity in reservoirs to 100 kg per hectare** compared to **50 kg in 2006**.
देश के मछली उत्पादन में वृद्धि का एक प्रमुख कारण जलाशयों में मछली उत्पादकता का 100 किलोग्राम प्रति हेक्टेयर तक बढ़ना है, जो 2006 में 50 किलोग्राम था।
- This has been made possible by application of **cage culture technology** with sufficient stocking of **quality seed** backed by requisite budgetary support under flagship programmes such as **Blue Revolution (BR)** and the **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**.
यह केज कल्चर तकनीक के उपयोग और गुणवत्तापूर्ण बीज के पर्याप्त भंडारण से संभव हुआ है, जिसे ब्लू रेवोल्यूशन और प्रधानमंत्री मत्स्य संपदा योजना जैसे प्रमुख कार्यक्रमों के तहत बजटीय समर्थन मिला है।
- **While the Indian major carps (Catla, Rohu, Mrigal) form the core species for stocking, need-based stocking of additional species (Tilapia, Pangasius, etc.) is provided under the above programmes.**
जहां भारतीय प्रमुख कार्प (कटला, रोहु, मृगल) मुख्य प्रजातियां हैं, वहीं आवश्यकता अनुसार तिलापिया, पंगसियस आदि अतिरिक्त प्रजातियों का भी समावेशन किया जाता है।
- These reservoir cages, floating or stationary, are typically made of **synthetic netting or mesh with a structure for support**.
ये जलाशय केज, तैरते या स्थिर, सामान्यतः सिंथेटिक जाल या जाली से बने होते हैं, जिन्हें सहारा देने के लिए संरचना होती है।



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



- The mesh allows for **natural water flow**, ensuring **oxygen and nutrient exchange** with the surrounding environment.
यह जाली प्राकृतिक जल प्रवाह की अनुमति देती है, जिससे ऑक्सीजन और पोषक तत्वों का आदान-प्रदान होता है।
- These cages are anchored to the bottom or suspended from buoys to maintain their **position and depth**.
इन केजों को नीचे से बांधा जाता है या तैरते उपकरणों से लटकाया जाता है, ताकि उनकी स्थिति और गहराई बनी रहे।

Are biomass stoves a cleaner, cheaper alternative to LPG?

Can modern cookstoves turn the return of firewood into a sustainable alternative during the LPG crisis?

GS III Economy
Ankit Mathur

The story so far:

wing to the LPG crisis, many areas—especially rural regions—have reported going back to firewood that are generally seen as increasing drudgery for women, while also causing pollution and health hazards.

Are today's firewood-based stoves less polluting and benign to human use?

Modern biomass stoves, often called improved cookstoves (ICS), represent a major step up from traditional cooking methods. Unlike old-fashioned mud stoves, they can cut fuel use by up to two-thirds while dramatically reducing smoke.

Traditional "chulhas" waste most of their heat through poor airflow and have an efficiency of barely 10%. By contrast, modern stoves reach thermal efficiency levels of 38% to 45%. Technologies such

as secondary aeration help to catch soot and harmful gases before they turn into smoke.

How can mass firewood-based cooking be made sustainable?

Cooking with firewood can be sustainable, provided the wood is harvested and used responsibly. Firewood is a renewable resource as long as the rate of extraction does not exceed the rate of regrowth. Since improved cookstoves burn fuel more efficiently, they can reduce the amount of wood needed for a meal.

Modern cookstoves can also run on alternative biomass fuels, including pellets and briquettes made from sawdust or agricultural waste. This widens the fuel base and takes some pressure off raw firewood.

Financing is key to achieving deployment at scale. Emissions savings enabled by improved cookstoves can be tracked and turned into carbon credits,

creating a funding stream that makes stoves more affordable for lower-income families.

What about the cost of equipment and fuel expenses?

Upfront costs vary significantly. Household models start below ₹2,000, while commercial systems can exceed ₹20,000, depending on the manufacturer and purchase channel (whether direct, through e-commerce, or via distributors). For low- and middle-income households, managing upfront costs can be made easier through financing partnerships involving microfinance, CSR programs, and carbon finance.

The principal operating cost is fuel, and modern cookstoves' high thermal efficiency can significantly reduce fuel requirements. Today's stoves have cut firewood consumption by more than 50%.

Firewood is highly cost-effective compared with LPG, especially during the

ongoing supply crunch when commercial LPG rates in major cities have exceeded ₹100/kg. From the wide range of prices available for different firewood types, it is possible to assume a rough average cost of around ₹10/kg (if firewood is being bought instead of being simply scavenged). Considering that 4 kilos of firewood deliver the same cooking energy output as 1 kg of commercial LPG (in an improved cookstove), firewood could potentially offer cost savings of well over 60%.

What supply chain would be needed for mass adoption? Will this be a massive investment?

Adopting biomass cookstoves on a large scale absolutely does not require a massive investment in fuel supply chains. Since the primary fuels—like firewood, crop waste, and dung cakes—are already widely available in rural and semi-urban areas, there is less need for expensive, centralised infrastructure.

Scaling up is therefore more about strengthening distribution networks. Success depends on improving logistics, last-mile delivery, and local partnerships. Just as importantly, building user awareness and providing reliable after-sales support are essential to making sure these stoves remain a permanent part of daily life.
(The author is co-founder and CEO, Greenway Grameen)

THE GIST

Improved Cookstoves (ICS) offer a sustainable solution by increasing thermal efficiency, reducing smoke, and cutting firewood usage by over 50%.

Mass adoption of efficient biomass stoves does not require massive infrastructure investment, as local, renewable fuels (wood, agricultural waste) are readily available.

13A. Are biomass stoves a cleaner, cheaper alternative to LPG?

क्या बायोमास चूल्हे एलपीजी का अधिक स्वच्छ और सस्ता विकल्प हैं?

- Can modern cookstoves turn the return of firewood into a sustainable alternative during the LPG crisis?
क्या आधुनिक कूकस्टोव एलपीजी संकट के दौरान लकड़ी के उपयोग की वापसी को एक सतत विकल्प में बदल सकते हैं?

Owing to the LPG crisis, many areas—especially rural regions—have reported going back to firewood

एलपीजी संकट के कारण कई क्षेत्रों—विशेषकर ग्रामीण इलाकों—में फिर से लकड़ी के उपयोग की ओर वापसी देखी गई है



- Owing to the **LPG crisis**, many areas—especially rural regions—have reported going back to **firewood**, that are generally seen as increasing **drudgery for women**, while also causing pollution and health hazards.
एलपीजी संकट के कारण कई क्षेत्रों—विशेषकर ग्रामीण क्षेत्रों—में **लकड़ी के उपयोग** की ओर वापसी हुई है, जिसे महिलाओं के लिए अधिक श्रमसाध्य और प्रदूषण व स्वास्थ्य समस्याओं का कारण माना जाता है।
- Traditional **chulhas** have an efficiency of barely **10%**.
पारंपरिक **चूल्हों की दक्षता केवल 10%** होती है।
- Modern stoves reach **38% to 45% thermal efficiency**.
आधुनिक चूल्हे **38% से 45% तक दक्षता** प्राप्त करते हैं।
- Technologies such as **secondary aeration** reduce soot and harmful gases.
सेकेंडरी एरेशन तकनीक कालिख और हानिकारक गैसों को कम करती है।

How can mass firewood-based cooking be made sustainable? लकड़ी आधारित खाना पकाने को टिकाऊ कैसे बनाया जा सकता है?

- Cooking with firewood can be sustainable if **harvesting is responsible**.
यदि **लकड़ी का उपयोग जिम्मेदारी से किया जाए**, तो यह टिकाऊ हो सकता है।
- Firewood is a **renewable resource** if extraction does not exceed regrowth.
लकड़ी एक **नवीकरणीय संसाधन** है, बशर्ते कटाई पुनर्जनन से अधिक न हो।
- Improved cookstoves reduce the **amount of wood required**.
सुधारित चूल्हे **लकड़ी की आवश्यकता को कम करते हैं**।
- They can also use **pellets and briquettes** from agricultural waste.
ये **पेलेट और ब्रिकेट** जैसे वैकल्पिक ईंधन भी उपयोग कर सकते हैं।
- This reduces pressure on **raw firewood**.
इससे **कच्ची लकड़ी पर दबाव कम होता है**।
- Financing is key, and emissions savings can generate **carbon credits**.
वित्तपोषण महत्वपूर्ण है और उत्सर्जन में कमी से **कार्बन क्रेडिट** प्राप्त हो सकते हैं।

What about the cost of equipment and fuel expenses? उपकरण और ईंधन की लागत क्या है?

- Household models start below **₹2,000**, while commercial systems exceed **₹20,000**.
घरेलू मॉडल **₹2,000 से कम** में उपलब्ध हैं, जबकि व्यावसायिक मॉडल **₹20,000 से अधिक** के हो सकते हैं।
- Financing can be supported through **microfinance, CSR, and carbon finance**.
वित्तपोषण **सूक्ष्म वित्त, CSR और कार्बन वित्त** से संभव है।
- The main operating cost is **fuel**, but high efficiency reduces consumption.
मुख्य संचालन लागत **ईंधन** है, लेकिन उच्च दक्षता खपत को कम करती है।
- Modern stoves have reduced firewood consumption by **over 50%**.
आधुनिक चूल्हों ने लकड़ी की खपत को **50% से अधिक कम किया है**।
- Firewood is more **cost-effective than LPG**.
लकड़ी **एलपीजी से अधिक सस्ती** है।
- Commercial LPG rates have exceeded **₹100/kg**.
व्यावसायिक एलपीजी दरें **₹100 प्रति किलोग्राम से अधिक** हो गई हैं।
- Firewood costs around **₹10/kg** on average.
लकड़ी की औसत कीमत लगभग **₹10 प्रति किलोग्राम** है।
- Four kilos of firewood equal **1 kg LPG energy output** in improved stoves.
सुधारित चूल्हों में **4 किलो लकड़ी = 1 किलो एलपीजी ऊर्जा** के बराबर होती है।
- Firewood can offer **over 60% cost savings**.
लकड़ी **60% से अधिक लागत बचत** दे सकती है।

What supply chain would be needed for mass adoption? व्यापक उपयोग के लिए आपूर्ति श्रृंखला कैसी होगी?



- Mass adoption does not require massive **infrastructure investment**. व्यापक उपयोग के लिए बड़े **अवसंरचना निवेश** की आवश्यकता नहीं है।
- Biomass fuels like firewood and crop waste are already **widely available**. लकड़ी और कृषि अपशिष्ट जैसे ईंधन पहले से ही **व्यापक रूप से उपलब्ध** हैं।
- Focus should be on **distribution networks and last-mile delivery**. ध्यान **वितरण नेटवर्क और अंतिम मील आपूर्ति** पर होना चाहिए।
- Local partnerships and awareness are crucial for adoption. स्थानीय साझेदारी और जागरूकता **महत्वपूर्ण** है।
- Reliable **after-sales support** is also essential. विश्वसनीय **बिक्री के बाद सेवा** भी आवश्यक है।

No, life insurance isn't like fixed deposit

GS III: Economy
COVERNOTE

K. Nitya Kalyani

In the previous instalment of CoverNote we saw an idea of what constitutes mis-selling. How does it happen? How do you get mis-led about the nature and suitability of an insurance policy?

Insurance spells safety. A policy's features contribute to providing you security. It will also have some features you have to be aware of before you buy. When those are understated, not clarified, or even hidden from you or misrepresented, it makes the product sound safer than it is and lulls you into the purchase.

The mis-selling sales pitch is tuned to make an insurance policy sound benign, simple and more advantageous than it is.

Common and vintage tactics to mis-sell start with describing a life insurance policy as 'like a fixed deposit'. It isn't and cannot be. Many life policies are sold as offering 'guaranteed' returns. Some returns may be guaranteed under some policies, but many are declared year to year and are dependent on various terms and conditions.

Cousins of the guaranteed return are the minimum return and the assured addition. They may apply only to part of the proceeds of the policy while others are variable and optional.

Another ploy is to position the mandatory illustrative benefits as guaranteed. The difference between the two will be clearly printed in the policy brochure and you should ensure you ask for it apart from hearing the oral pitch which can be misleading.

- Selling a has become selling.

रेगुलर प्रीमियम पॉलिसी को सिंगल प्रीमियम बताकर बेचना सबसे खराब मिस-सेलिंग है।

Unit-linked insurance policies (ULIPs) are sold as high return policies and better than mutual funds as they come with life coverage. The high returns are a possibility indeed, as are low returns or losses! As for their comparison with mutual funds, please ask for a comparable fund option and check for yourself what the charges are on the ULIP and on the mutual fund.

Selling a regular premium policy as a single premium has become the saddest and most laughable kind of mis-selling. And then there is pressure sales of insurance as a tax-saver. Yes, that same one you were subjected to all of last month!

More serious cases involve underplaying facts that are material to the policy and its coverage. Let us say you declare a pre-existing disease (PED). The agent may persuade you to avoid this since coverage would be difficult or premium would be higher. Or you may make it easy for him, like many do, by signing a blank proposal form that he can complete ethically or unethically.

There are sinister cases where signatures have been forged on cleaned up versions of proposal forms and even fake lab test reports showing safe blood glucose levels and normal ECGs have been substituted to hide PEDs.

The proposal and its declarations are yours to live with and so are the claims denials that will haunt you later on. You can prevent this entirely by filling up your proposal form personally and retaining a photocopy. And there is a second chance to correct any error or mischief. When the insurance policy is issued to you, the company has to give you a copy of your proposal form. It is in your interest to check it at least then. The 15-day free-look period when you can return any policy and get a refund of premium is an opportunity to exit a bad deal. I would urge you strongly to be aware of it and be ready to use it if needed. Like many things in this world, for each unethical seller there are many more honest foot-soldiers in the insurance sales army. The sad news is that academic studies in marketing reveal that mis-sellers make more money, for themselves and their companies.

That was a sample of how mis-selling can happen. Let's go on to see why and what you can do to protect yourself as indeed the regulator's position.

13A. No, life insurance isn't like fixed deposit नहीं, जीवन बीमा फिक्स्ड डिपॉजिट जैसा नहीं होता

• Common and vintage tactics to mis-sell start with describing a life insurance policy as 'like a fixed deposit'.

मिस-सेलिंग की आम रणनीति में जीवन बीमा को 'फिक्स्ड डिपॉजिट जैसा' बताना शामिल है।

• It isn't and cannot be. यह ऐसा नहीं है और हो भी नहीं सकता।

• Many life policies are sold as offering 'guaranteed' returns.

कई जीवन बीमा पॉलिसियां 'गारंटीड रिटर्न' देने के रूप में बेची जाती हैं।

• Some returns may be guaranteed under some policies, but many are declared year to year and are dependent on various terms and conditions.

कुछ रिटर्न वास्तव में गारंटीड हो सकते हैं, लेकिन कई साल-दर-साल घोषित होते हैं और विभिन्न शर्तों पर निर्भर करते हैं।

• Unit-linked insurance policies (ULIPs) are sold as high return policies and better than mutual funds as they come with life coverage.

ULIPs को उच्च रिटर्न और म्यूचुअल फंड से बेहतर बताकर बेचा जाता है क्योंकि इनमें जीवन कवर होता है।

• The high returns are a possibility indeed, as are low returns or losses! उच्च रिटर्न संभव है, लेकिन कम रिटर्न या नुकसान भी संभव है।

• As for their comparison with mutual funds, please ask for a comparable fund option and check for yourself what the charges are on the ULIP and on the mutual fund.

म्यूचुअल फंड से तुलना के लिए, समान विकल्प मांगें और दोनों के चार्जस स्वयं जांचें।

regular premium policy as a single premium the saddest and most laughable kind of mis-



- And then there is pressure sales of insurance as a tax-saver. इसके अलावा, बीमा को **टैक्स बचाने के साधन** के रूप में दबाव डालकर बेचना भी होता है।
- More serious cases involve underplaying facts that are material to the policy and its coverage. गंभीर मामलों में पॉलिसी से जुड़े **महत्वपूर्ण तथ्यों को छिपाया** जाता है।
- Let us say you declare a pre-existing disease (PED). मान लीजिए आप **पूर्व-स्थित बीमारी (PED)** बताते हैं।
- The agent may persuade you to avoid this since coverage would be difficult or premium would be higher. एजेंट आपको इसे छिपाने के लिए कह सकता है क्योंकि **कवरेज मुश्किल** या **प्रीमियम अधिक** हो सकता है।
- Or you may make it easy for him by signing a blank proposal form. या आप **खाली प्रस्ताव फॉर्म पर हस्ताक्षर** करके उसकी मदद कर सकते हैं।
- There are sinister cases where signatures have been forged and fake lab test reports substituted to hide PEDs. कुछ मामलों में **हस्ताक्षर फर्जी बनाए जाते हैं** और **नकली लैब रिपोर्ट** दी जाती हैं।
- **When the insurance policy is issued, the company has to give you a copy of your proposal form.** पॉलिसी जारी होने पर कंपनी आपको **प्रस्ताव फॉर्म की कॉपी** देती है।
- **It is in your interest to check it at least then.** आपके हित में है कि आप इसे **जांचें**।
- **The 15-day free-look period allows you to return the policy and get a refund.** **15 दिन की फ्री-लुक अवधि** में आप पॉलिसी वापस कर सकते हैं और पैसा प्राप्त कर सकते हैं।

Why deposit tokens will shape the next trillion

GS III: Economy

Aishwary Gupta

India stands at a pivotal moment in the evolution of its financial system. Over the last decade, public digital infrastructure such as UPI and Aadhaar have transformed how money moves domestically.

Yet, as global finance shifts toward programmable, always-on settlement rails, India faces a strategic question: how does it modernise banking without compromising stability?

Two ideas – deposit tokens and asset tokenisation – may hold the answer.

Deposit tokens represent a natural evolution of bank money. Issued by regulated banks on secure, permissioned blockchain

rails, these tokens are fully backed by traditional deposits and subject to prudential oversight.

Each token is a direct claim on a bank's balance sheet, preserving trust while unlocking new technical capabilities.

Rather than operating outside the system, deposit tokens extend the regulated banking framework into a programmable digital layer.

This distinction is critical. Much of the debate around digital money has focused on the perceived trade-offs between innovation and safety.

Deposit tokens eliminate this false choice. They enable near instant settlement, atomic delivery ver-

Deposit tokens are issued by regulated banks and represent a natural evolution of bank money

sus payment, and automated reconciliation. These are features that today require multiple intermediaries and delayed clearing, without introducing new credit or liquidity risks.

For Indian banks, the implications are immediate. Interbank settlements, treasury operations, and large-value corporate payments can move from batch-based processes to real-time rails.

Cross-border transactions, which today remain

slow, expensive, and opaque, can be sped up with greater transparency, and compliance embedded directly in transactions rather than applied after the fact.

Several global blockchain infrastructure providers, including Polygon, are working with banks and other institutions on permissioned, compliance-first blockchain rails for tokenised deposits and real-world assets.

Tokenisation of real-world assets presents an equally important opportunity. India is rich in assets but constrained by liquidity. Vast amounts of capital remain locked in real estate, gold, infrastructure, and unlisted

equity.

These valuable assets are difficult to divide, transfer, or use efficiently as collateral. Tokenisation represents ownership or economic rights as digital tokens that can be fractionalised, transferred, and settled with far lower friction.

In real estate, tokenisation can simplify complex ownership structures with greater transparency. Gold, long an asset of choice for Indian households, can be tokenised with secure custody and instant settlement, allowing it to integrate effectively with formal financial markets. Even private equity and venture investments, traditionally illi-

quid and limited to institutional players, can benefit from controlled liquidity under compliant tokenised frameworks.

Importantly, tokenisation is not about speculative financialisation. It is about making existing value more efficient, reducing operational costs, improving access, and widening participation under clear regulatory guardrails. When paired with bank-issued deposit tokens, tokenised assets can settle instantly in regulated digital money, reducing counterparty risk and enabling new market structures.

(The writer is Global Head of Payments at Polygon Labs)

13A. Why deposit tokens will shape the next trillion

डिपॉजिट टोकन अगला ट्रिलियन कैसे आकार देंगे

- **Yet, as global finance shifts toward programmable, always-on settlement rails, India faces a strategic question: how does it modernise banking without compromising stability?** लेकिन जैसे-जैसे वैश्विक वित्त **प्रोग्रामेबल और 24x7 सेटलमेंट** की ओर बढ़ रहा है, भारत के सामने सवाल है कि **स्थिरता बनाए रखते हुए बैंकिंग को कैसे आधुनिक बनाया जाए**।
- Two ideas — deposit tokens and asset tokenisation — may hold the answer. दो विचार — **डिपॉजिट टोकन और एसेट टोकनाइजेशन** — इसका समाधान हो सकते हैं।



- **Deposit tokens** represent a natural evolution of bank money.
डिपॉजिट टोकन बैंकिंग धन का स्वाभाविक विकास हैं।
- **Issued by regulated banks on secure, permissioned blockchain rails, these tokens are fully backed by traditional deposits and subject to prudential oversight.**
ये टोकन नियामित बैंकों द्वारा सुरक्षित ब्लॉकचेन पर जारी होते हैं और पूरी तरह जमा राशि से समर्थित होते हैं।
- Each token is a direct claim on a bank's balance sheet, preserving trust while unlocking new technical capabilities.
हर टोकन बैंक की बैलेंस शीट पर सीधा दावा होता है, जो विश्वास बनाए रखते हुए नई तकनीकी क्षमताएं प्रदान करता है।
- Rather than operating outside the system, deposit tokens extend the regulated banking framework into a programmable digital layer.
सिस्टम से बाहर काम करने के बजाय, ये नियामित बैंकिंग को डिजिटल प्रोग्रामेबल लेयर में विस्तारित करते हैं।
- This distinction is critical.
यह अंतर बहुत महत्वपूर्ण है।
- Much of the debate around digital money has focused on the perceived trade-offs between innovation and safety.
डिजिटल धन पर बहस अक्सर नवाचार और सुरक्षा के बीच संतुलन पर केंद्रित रही है।
- **Deposit tokens eliminate this false choice.**
डिपॉजिट टोकन इस झूठे द्वंद्व को समाप्त करते हैं।
- **They enable near instant settlement, atomic delivery versus payment, and automated reconciliation.**
ये तत्काल सेटलमेंट, डिलीवरी बनाम भुगतान और स्वचालित समंजन को सक्षम बनाते हैं।
- **These are features that today require multiple intermediaries and delayed clearing, without introducing new credit or liquidity risks.**
ये सुविधाएं आज कई मध्यस्थों और देरी के साथ मिलती हैं, जबकि इसमें नए जोखिम नहीं होते।
- **Tokenisation represents ownership or economic rights as digital tokens that can be fractionalised, transferred, and settled with far lower friction.**
टोकनाइजेशन संपत्ति को डिजिटल टोकन में बदल देता है जिन्हें आसानी से विभाजित और ट्रांसफर किया जा सकता है।
- In real estate, tokenisation can simplify complex ownership structures with greater transparency.
रियल एस्टेट में यह स्वामित्व को सरल और पारदर्शी बनाता है।
- Gold, long an asset of choice for Indian households, can be tokenised with secure custody and instant settlement, allowing it to integrate effectively with formal financial markets.
सोना, जो भारतीयों की पसंद है, उसे टोकनाइज करके सुरक्षित और तुरंत उपयोग में लाया जा सकता है।
- **Even private equity and venture investments, traditionally illiquid and limited to institutional players, can benefit from controlled liquidity under compliant tokenised frameworks.**
प्राइवेट इक्विटी और वेंचर निवेश भी टोकनाइजेशन से तरलता पा सकते हैं।
- **Importantly, tokenisation is not about speculative financialisation.**
महत्वपूर्ण बात यह है कि यह सट्टेबाजी नहीं है।
- **It is about making existing value more efficient, reducing operational costs, improving access, and widening participation under clear regulatory guardrails.**
यह मौजूदा मूल्य को अधिक कुशल बनाना, लागत घटाना और पहुंच बढ़ाना है।
- **When paired with bank-issued deposit tokens, tokenised assets can settle instantly in regulated digital money, reducing counterparty risk and enabling new market structures.**
जब इसे डिपॉजिट टोकन के साथ जोड़ा जाता है, तो यह तत्काल सेटलमेंट, कम जोखिम और नए बाजार ढांचे को सक्षम बनाता है।



All the light we cannot see

The match industry in Tamil Nadu, over a 100 years old, might have just met its most formidable enemy. A new threat has emerged in the form of cheap, imported, limited-use plastic lighters, and it looks like they may take the puff out of the safety match industry. **S. Sundar** reports on this phenomenon from Sivakasi, the match heartland of the South.

ISSUE ECONOMY

A buoyant safety match industry celebrated its centenary last year. One of the biggest job providers in the southern districts of Virudhunagar, Thoothukudi, and Tirunelveli – after agriculture and fireworks – match production has been mechanised over the years. Yet, the industry remains labour-intensive, thanks in large measure to the smaller feeder units in different parts of these districts. Conducive climatic conditions and a strong workforce have helped the industry thrive.

The tale of how the area became a hub for manufacturing matches for the entire nation is interesting. Entrepreneur cousins A. Shunmuga Nadar and P. Ayya Nadar travelled to Calcutta in 1922 and stayed there for eight months to learn the know-how of match manufacturing. Returning home, they opened the first match unit in Sivakasi in 1923. They reduced the dependency on foreign technology and imported raw materials to make cheaper matches.

Mahatma's call

Responding to Mahatma Gandhi's call during the Swadeshi movement, the cousins shunned machinery and started making matches with local wood and workforce. Congress leader K. Kamaraj's efforts to relax the stringent licensing conditions further helped the trade emerge as a cottage industry that rapidly spread across rural areas in the mid 1930s. From these humble origins, the industry has grown to post an estimated annual turnover of ₹2,400 crore.

Cousins A. Shunmuga Nadar and P. Ayya Nadar travelled to Calcutta in 1922 and stayed there for eight months to learn the know-how of match manufacturing. Returning home, they opened the first match unit in Sivakasi in 1923.

People would borrow embers from neighbours to start a fire in their ovens fuelled by sawdust, paddy husk, and firewood. The habit changed gradually, and matchboxes found widespread use. As lifestyles changed, the industry flourished.

However, in the late 1990s, the increasing penetration of cooking gas in both urban and rural areas put the brakes on the use of matchboxes in kitchens. The switch from firewood to cooking gas cut the need for matchboxes significantly. People also started using kitchen lighters to light LPG stoves with just a click. These days, self-ignition gas stoves have replaced even the lighters. Thus, the demand for matchboxes continues to decline.

New danger

The advent of cigarette lighters a few decades ago threatened the match industry, but the impact was limited to elite circles. "The cost of lighters back then was not less than ₹50 and not everyone could afford one," said G. Nagarajan,

We want the Tamil Nadu government to ban lighters as single-use plastic goods have already been banned in the State.
S. LAKSHMANAN,
president, Sattur Matches Manufacturers Association

treasurer of the All India Chamber of Match Industries. Then, a matchbox with 50 sticks would give 50 strikes and each strike would cost only one paise. "The matchbox was cheaper than the high-end cigarette lighter," said G. Athipathi, a leading match manufacturer.

Meanwhile, the match industry also underwent modernisation – from handmade to semi-mechanisation and eventually near-complete mechanisation. The machines made production faster and reduced labour cost. Also, for the longest period, the price of a matchbox stayed at 50 paise, with the industry depending on volumes for profit. With the production cost increasing, the price of a matchbox was raised marginally to ₹1.

Over the years, even the lowest currency devaluation rose to ₹1. "We were not charging a higher rate. Hence, we reduced the number of sticks from 50 to 30 [to make up for the higher input cost]," Mr. Athipathi explained.

Biggest threat

Now, the industry faces its biggest threat from cheap Chinese lighters that have flooded the Indian market. "The cost of a disposable lighter is just ₹4 to ₹5 in the wholesale market. In the retail market, it is sold for ₹10," said S. Lakshmanan, president, Sattur Matches Manufacturers Association.

When the manufacturers voiced concern, the Union government restricted the import of lighters costing less than ₹20 apiece. However, traders found a loophole and started importing them under the category of spare parts. As a result, lighter assembling units flourished in several parts of the country. One cheap lighter can produce around 250 strikes – more than 10 matchboxes. "This is so cheap that it will be impossible for the industry to fight against such unfair competition," said J. Vijayanand, the

chamber president.

Despite the Central government's restrictions, imports are continuing due to the legal loophole, he added. This must be tackled urgently, he stressed. Both the Union and State governments must work together to put an end to the availability of these cheap lighters, industry experts pointed out.

"These lighters are banned on the Andaman and Nicobar Islands as these plastic goods are a threat to the fragile ecosystem of the islands. We want the Tamil Nadu government to ban lighters as single-use plastic goods have already been banned in the State," Mr. Lakshmanan added.

Besides, cheaper lighters could pose a threat to users as the flame-controlling mechanism is not foolproof. "On pressing the trigger, the lighter could produce a bigger-than-expected flame and hurt the user," warned Mr. Athipathi.

Right from import to sales, tax evasion makes the lighters cheaper, whereas the matchboxes attract 5% GST. With around 90% of the matches being made in southern Tamil Nadu, the lighters will also affect the economy of these districts.

Many benefits

The industry also earns foreign exchange as exports are worth ₹400 crore annually. It employs around 5 lakh people. Besides, it reuses waste paper as raw material. The benefits of the homegrown match industry are multi-layered – from tax revenue to employment generation. Besides, matches are more environment-friendly, their manufacturers said. In contrast, the lighter assembly units do not hire as many people and the product does not bring any revenue to the exchequer. All that the match industry wants is an effective blanket ban on cheap lighters. The industry expects the political parties to address its problems in this election season so that it can survive.



Coming in handy: Lighters are smaller and cheaper than matchboxes. They could be easily lit even in windy conditions. G. MOORTHY

From frugality to social status

In the past, cost-conscious smokers would share a matchstick to light a few beedis. They also had the habit of borrowing lit beedis or even cigarettes to light theirs.

At the petty shops, the shopkeepers would keep a lit kerosene lamp in the front. Men used to light their beedis with a small piece of paper, mostly cut from cigarette boxes, to transfer the flame from the lamp to the beedis. Subsequently, thick coir ropes replaced the oil lamps.

This practice continued for years even after a good number of youngsters switched to costlier cigarettes.

"Smoking used to be frowned upon in our culture. So, smokers used to avoid carrying matchboxes in their shirt pockets as it would reveal their smoking habit to the family members," says Harris, a regular smoker.

However, over the period, the cigarette lighters became popular, not only because lighters were user-friendly but also it brought with it a social status among smokers.

Unlike matchboxes that must be protected from water and moist conditions, the lighters do not need any such care. Besides, they are smaller in size. The lighters could be easily lit even in windy conditions.

With these salient features, the single-use plastic lighters that come in different colours have become popular. The scene has changed these days, with petty shops having lighters tied to a thread outside the shops.



Impetus: Congress leader K. Kamaraj's efforts to relax the stringent licensing conditions further helped match manufacturing emerge as a cottage industry that rapidly spread in rural areas in the mid 1930s. It now posts an estimated annual turnover of ₹2,400 crore. G. MOORTHY

13A. All the light we cannot see जो रोशनी हम नहीं देख सकते

- **The match industry in Tamil Nadu, over a 100 years old, might have just met its most formidable enemy.**
तमिलनाडु का माचिस उद्योग, जो 100 वर्षों से अधिक पुराना है, शायद अपने सबसे बड़े प्रतिद्वंद्वी से सामना कर चुका है।
- **A new threat has emerged in the form of cheap, imported, limited-use plastic lighters, and it looks like they may take the puff out of the safety match industry.**
एक नया खतरा सस्ते, आयातित, सीमित उपयोग वाले प्लास्टिक लाइटर्स के रूप में सामने आया है, और ऐसा लगता है कि वे सेफ्टी माचिस उद्योग को कमजोर कर सकते हैं।
- **With around 90% of the matches being made in southern Tamil Nadu, the lighters will also affect the economy of these districts.**
लगभग 90% माचिस दक्षिण तमिलनाडु में बनती है, इसलिए लाइटर इन जिलों की अर्थव्यवस्था को प्रभावित करेंगे।
- **The industry employs around 5 lakh people.**
यह उद्योग लगभग 5 लाख लोगों को रोजगार देता है।
- **Besides, it reuses waste paper as raw material.**
इसके अलावा, यह अपशिष्ट कागज को कच्चे माल के रूप में पुनः उपयोग करता है।
- **The benefits of the homegrown match industry are multi-layered — from tax revenue to employment generation.**
स्थानीय माचिस उद्योग के लाभ बहु-आयामी हैं — कर राजस्व से लेकर रोजगार सृजन तक।



GS Paper III: Science and Technology		13 April 2026
TOPICS COVERED		
13A	Cancer courses through the Ghaggar in Haryana हरियाणा में घग्गर के माध्यम से कैंसर फैल रहा है	
13A	Study unravels why men experience more skin infections than women अध्ययन से पता चलता है कि पुरुषों में महिलाओं की तुलना में अधिक त्वचा संक्रमण क्यों होते हैं	
13A	Inside the world of shadow libraries: digital piracy, AI, and the fight for access शैडो लाइब्रेरी की दुनिया के भीतर: डिजिटल पाइरेसी, एआई और पहुंच के लिए संघर्ष	

SPOTLIGHT

Ashok Kumar

Suresh Kumar's eyes sparkle as he recalls his childhood days spent in the Ghaggar river's clear waters, catching fish, and soaking up the sun with friends. "We'd spot fish swimming; it was crystal clear," he exclaims, still in awe. This was back when the intermittent, monsoon-fed river was the heartbeat of Mallewala village in Haryana's Sirsa, 250 km west of Delhi.

"Now it stinks, it's hard to go near," Kumar says, his face falling. The Ghaggar, once a symbol of life and sustenance, has been ravaged by untreated sewage and industrial waste. It flows through Haryana, entering at Panchkula and passing through Ambala, Kaithal, and Fatehabad before reaching Sirsa. Now, it leaves behind a trail of disease and despair.

Grappling with crisis

Heavily dependent on the Ghaggar for irrigation and drinking water, Mallewala village, with a population of 4,000, is grappling with a cancer crisis. Over 25-30 people have died of the disease over the past decade, claim locals, sparking fears that pollution from the Ghaggar may be to blame.

Kumar recalls the village's cancer cases surged after 2007, the year the river began showing signs of severe pollution. His sister-in-

law succumbed to breast cancer three years ago after a decade of treatment. His older brother was diagnosed with urine bladder cancer a year ago.

Every second house bears the scars of the disease, with people either having lost a loved one or fighting for survival. The treatment is financially crippling and emotionally draining, made worse by the absence of government or private cancer facilities in Sirsa. Residents are forced to travel to Hisar in Haryana or to the State capital, Chandigarh, or seek treatment in distant cities like Bhatinda in Punjab, or Jaipur and Bikaner in Rajasthan.

Gural Singh, 38, lost his father and two uncles to cancer within a few years, a decade ago. The memories of his family's struggle still haunt him: the financial strain, emotional toll, desperation. "We sold 7 kanals (8 acres) of agricultural land to pay for my father's treatment," he recalls, his voice heavy with grief.

Sukhbir Kaur, 52, a domestic worker, was diagnosed with uterine cancer in 2016, after she got herself examined following excessive bleeding. She borrowed money on interest, pawned her jewellery, and sought help from the non-profit Shromani Gurdwara Parbandhak Committee in Punjab to scrape together ₹9 lakh for treatment at a private hospital in Hisar.

"After the diagnosis, we went to AIIMS, Bhatinda,

Cancer courses through the Ghaggar in Haryana

Residents of villages along the river, especially in Sirsa and Fatehabad districts, claim a surge in cancer cases allegedly linked to contaminated water. However, tackling the crisis is proving tough due to absence of reliable data on cancer patients in the State and inadequate treatment facilities



The Ghaggar river flows through Mallewala village in Haryana's Sirsa district. SHASHI SHEKHAR KASHYAP

hoping for less expensive treatment. We did not get an appointment after a 10-day wait. So, we returned to Hisar for treatment," says Sukhbir's daughter Soma, who works with the Home Guards.

Gural points an accusing finger at the drinking water, suspecting it is the culprit behind the surge in

cancer cases. Yet, he laments, the disease remains a social taboo, shrouded in silence and stigma. His plea is for more awareness, early diagnosis, and government intervention.

Locals also blame cancer on the excessive use of fertilizers and pesticides, Sirsa being Haryana's cotton belt. Groundwater too

raises cancer risk.

Cancer is not a notifiable disease in Haryana and at the national level, meaning private hospitals and diagnostic centres are not mandated to report new cases to health authorities. It is a non-communicable disease, unlike infectious illnesses that require immediate, emergency

containment.

However, in the absence of mandatory reporting, cancer data is fragmented, often relying on voluntary hospital-based and population-based registries that may cover only a small fraction of the population.

Posing a challenge

The lack of data on cancer cases makes it tough to pinpoint areas with high incidence or types of cancer that are on the rise. "This leads to inefficient allocation of resources, such as insufficient treatment centres in areas that need them most. It also stalls public health efforts, including screening programmes, making early detection a challenge."

Director General of Health Services Manish Bansal says it is "desired" that private hospitals and diagnostic labs share cancer patients data. Since a 2016 government notification, the Health Department collects data from private hospitals, he says.

With many going to other States for treatment, there is a gap in data. As per the Haryana Health Department report, based on the data collected by civil surgeons across the State, the average annual incidence of cancer cases in Sirsa is 110 from 2020-24.

According to the hospital-based Cancer Registry report by the Indian Council of Medical Research (ICMR) and the National Cancer Registry Programme (NCRP), the aver-

age number of cancer patients in Sirsa from 2020-24 is 136.

Both figures are in sharp contrast to a report of the Population Based Cancer Registry, 'Haryana Cancer Atlas', implemented in the State from 2016 to 2018, in collaboration with National Centre for Disease Informatics and Research, Bengaluru. As per the "Development of An Atlas Of Cancer in Haryana State" project report, that covered data accrued over a two-year period – January 1, 2016 to December 31, 2017 – and over 120 centres within and outside Haryana, the number of patients in Sirsa was 1,509, including 720 women, with an annual average of 754 patients.

The report identified lung, mouth and oesophagus as leading cancer sites in men in Sirsa, and the three most common cancers in women were breast, cervix-uteri, and ovarian. For Fatehabad, the annual average figures as per the Haryana Atlas Cancer report are 587 for 2016-17, but the ICMR and State Health Department reports suggest an annual average cases of 126 and 352 for 2020-24 respectively.

Similarly, the State government figures pegged the annual cancer cases for Haryana for 2022-23 and 2023-24 at 13,256 and 15,015 respectively, but the estimated numbers of cancer cases in the State as per National Cancer Registry

Programme report 2020, maintained by ICMR-NCRP, for 2023 and 2024, are 31,679 and 32,513 respectively.

The Haryana Cancer Atlas project, though an initiative representing an analytical estimate of the true cancer burden, fizzled out after the first report due to lack of cooperation from private hospitals and labs that saw it as an "additional burden", and the large costs involved in its implementation, says a State Health Department official on condition of anonymity.

However, based on the number of beneficiaries of various government schemes for cancer patients in Haryana, Deputy Civil Surgeon, Sirsa, Vipul Gupta rules out any "exponential surge" in cancer in the district, stressing the increase is "routine".

A six-bedded Day Care Centre for Chemotherapy was opened in the Sirsa Civil Hospital two months ago. Haryana Chief Minister Nayab Saini also laid the foundation stone for the Sant Sarsai Nath Government Medical College in Sirsa on November 21, 2024, which will feature a dedicated cancer wing.

The rising number of cancer cases along the Ghaggar belt in the State, especially Sirsa and Fatehabad, has been mentioned in Parliament and the State Assembly on several occasions.

ashok.kumar@thehindu.co.in

13A	What an Oracle foretells about jobs and careers in the AI era एआई युग में नौकरियों और करियर के बारे में भविष्यवाणी क्या कहती है
------------	---

13A. Cancer courses through the Ghaggar in Haryana हरियाणा में घग्गर के माध्यम से कैंसर फैल रहा है

- The Ghaggar, flows through Haryana, entering at Panchkula and passing through Ambala, Kaithal, and Fatehabad before reaching Sirsa.
यह हरियाणा में पंचकूला से प्रवेश करती है और अंबाला, कैथल, फतेहाबाद से होते हुए सिरसा पहुंचती है।
- Locals also blame cancer on the excessive use of fertilizers and pesticides.
स्थानीय लोग उर्वरकों और कीटनाशकों के अत्यधिक उपयोग को भी जिम्मेदार मानते हैं।
- Groundwater too raises cancer risk.
भूजल भी कैंसर के खतरे को बढ़ाता है।



- Cancer is not a notifiable disease in Haryana or at the national level. कैंसर हरियाणा या राष्ट्रीय स्तर पर सूचना योग्य रोग (Notifiable Disease) नहीं है।
- Thus, private hospitals are not mandated to report new cases. इसलिए निजी अस्पतालों को नए मामलों की रिपोर्ट देना अनिवार्य नहीं है।

Study unravels why men experience more skin infections than women

Hormones may do more than regulate mood, behaviour, and reproduction – and new findings suggest they may also determine how vulnerable we are to skin infections and how we fight them; male sex hormones, which include testosterone, help bacteria communicate and cause skin infections by activating a bacterial signalling system

CS III S&T
Kavi Bharathi R.

Men experience more skin infections than women – doctors have known this for a while. They have proposed both behavioural and physiological reasons for this difference but the exact mechanism has been unclear.

Recently, scientists at UT Southwestern Medical Centre in Texas in the U.S. reported that the male sex hormones, androgens, which include testosterone, help bacteria communicate and cause skin infections by activating a bacterial signalling system called quorum sensing.

Their findings, published in *Nature Microbiology*, show that reducing testosterone levels in mouse models increased the animals' resistance to infections. When the researchers applied testosterone typically to female mice, the infection became more severe.

Skin's hormones

Sex hormones are generally thought to be produced by the testes or ovaries. However, Tamia Harris-Tryon, Associate Professor of dermatology and immunology at UT Southwestern, and her team had previously shown using an advanced technique called liquid chromatography tandem mass spectrometry that the skin also generates and secretes extremely small concentrations of these hormones.

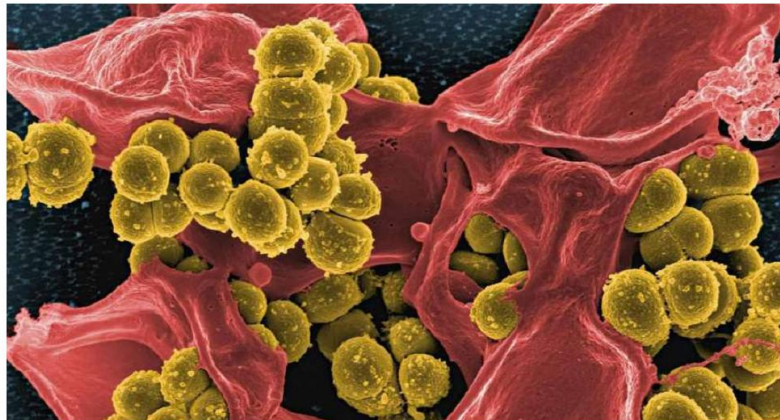
"We continue to be fascinated by how the skin makes sex hormones and how this changes in skin diseases," Dr. Harris-Tryon said.

The skin is a hormonally responsive organ. Its sebaceous glands can produce hormones, making testosterone readily available to microbes living on the skin's surface. This is relevant to bacteria like *Staphylococcus aureus*. They don't begin an infection right away. Instead, they wait and multiply, and activate their disease-causing machinery only once the colony is dense enough to have a fighting chance. Bioinformatic analysis further revealed that the bacteria also respond to the host's hormones.

"Together, these observations led the team to explore a potential connection between host hormonal changes and microbial dynamics on the skin," Maria Sindhura John, the study's first author and a postdoctoral researcher at UT Southwestern, said.

To test whether testosterone from the skin drives infection, the researchers engineered mice that were unable to produce testosterone in the skin. These animals had markedly less severe infections and less skin barrier damage compared to normal mice. When testosterone was applied to hormone-deficient female mice, the infection became more severe.

The effect was specific to androgens. Female sex hormones, oestradiol and progesterone, didn't affect the bacteria's quorum sensing – where bacteria release



A coloured scanning electron micrograph of methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria, shown in gold, interacting with a human neutrophil, in red. NIAD

chemical signals into their environment and as the bacterial population grows, the concentration of these signals rises.

"This elegant study shows that host-derived androgen hormones modulate the quorum sensing system to make the bacteria more virulent," Ferric C. Fang, a clinician scientist at the University of Washington School of Medicine, who wasn't involved in the study, said. "Thus, the bacteria not only talk to each other, but the host also talks to the bacteria. This may help to explain why men are more susceptible to staphylococcal skin infections than women and could lead to new approaches for the treatment or prevention of these infections."

Beyond antibiotics

S. aureus is the leading cause of skin infections worldwide. It commonly colonises the skin and nose but when it enters the bloodstream, it can cause septicæmia, a life-threatening condition that could lead to organ failure.

These infections have been increasingly harder to treat, thanks to the rise of multi-drug-resistant *S. aureus*, a strain that resists methicillin and other related antibiotics. Doctors have associated it with prolonged hospital stays and higher mortality.

Conventional antibiotics try to kill bacteria or inhibit their growth, which creates strong evolutionary pressures that encourage bacteria to develop resistance to antibiotics. However, the new study targeted quorum sensing, which disrupts the bacteria's ability to coordinate harmful behaviours without necessarily threatening their survival.

"This also reduces selective pressure for resistance and may preserve beneficial



The bacteria not only talk to each other, but the host also talks to the bacteria. This may help to explain why men are more susceptible to staphylococcal skin infections than women

FERRIC C. FANG
Clinician scientist at the University of Washington School of Medicine

microbes, making it a potentially more sustainable strategy in combating antimicrobial resistance," Dr. Sindhura John said.

The researchers identified a mirror-image form of testosterone called enantiomer-testosterone (*ent-T*). While testosterone activated quorum sensing, *ent-T* blocked the bacterial communication pathway and reduced toxicity in human skin cells, red blood cells, and neutrophils in laboratory experiments. Computational modelling revealed how *ent-T* interacted with the bacterial targets, pointing to a possible strategy to tackle antibiotic resistance. "This was an unexpected but exciting discovery," Dr. Sindhura John said.

'Imagine someone is angry'

While studying how bacteria respond to natural testosterone and exploring structurally similar molecules to understand the specificity of the response, they found bacteria could distinguish between subtle molecular differences. This opened a new avenue to design compounds that can deliberately switch off harmful bacterial behaviour. "Imagine if someone is angry – you

don't remove or kill the person," Dr. Sindhura John said. "Rather, you calm them down so they behave normally again. We are doing something similar with bacteria."

Similarly, *S. aureus* is usually a normal skin resident but it becomes harmful when its environment changes. Instead of killing it, the researchers want to suppress its virulence and restore it to a harmless state. "This way, we reduce antibiotic resistance and maintain skin balance," Dr. Sindhura John added.

The interaction between humans and the resident bacteria is complex and poorly understood. "This study provides an interesting new angle, with the potential for exploitation to reveal new ways to combat important human infections," Simon J. Foster, the West Riding Chair in microbiology at the University of Sheffield, said.

Early phase trials

The researchers aim to test these findings in human skin models and move to early-phase trials to assess safety and efficacy. They are also keen to understand how these mechanisms operate within the complexity of the human microbiome.

"If successful, this approach could represent a paradigm shift in how we treat infections – moving away from broadly killing bacteria toward more precise modulation of their behaviour," Dr. Sindhura John said.

This approach could lead to therapies that are more effective, less disruptive to the body's natural microbiome, and less likely to drive antibiotic resistance.

(Kavi Bharathi R. is a science writer based at the Indian Institute of Science, Bengaluru.bharathi.colors@gmail.com)

THE GIST

▼ Skin's sebaceous glands can produce hormones, making testosterone readily available to microbes living on the skin's surface. This is relevant to bacteria like *Staphylococcus aureus*

▼ *S. aureus* is the leading cause of skin infections worldwide. It commonly colonises the skin and nose but when it enters the bloodstream, it can cause septicæmia, a life-threatening condition

▼ Instead of killing the bacterium, the researchers wanted to suppress its virulence and restore it to a harmless state

13A. Study unravels why men experience more skin infections than women



अध्ययन से पता चलता है कि पुरुषों में महिलाओं की तुलना में अधिक त्वचा संक्रमण क्यों होते हैं

- They have proposed both behavioural and physiological reasons for this difference but the exact mechanism has been unclear.
उन्होंने इस अंतर के लिए व्यवहारिक और शारीरिक कारण सुझाए हैं, लेकिन सटीक तंत्र स्पष्ट नहीं था।
- Male sex hormones, androgens, which include testosterone, help bacteria communicate and cause skin infections by activating a bacterial signalling system called quorum sensing.
हाल ही में, अमेरिका के टेक्सास स्थित यूटी साउथवेस्टर्न मेडिकल सेंटर के वैज्ञानिकों ने बताया कि पुरुष हार्मोन (एंड्रोजन), जिनमें टेस्टोस्टेरोन शामिल है, बैक्टीरिया के संचार में मदद करते हैं और क्वोरम सेंसिंग नामक संकेत प्रणाली को सक्रिय करके त्वचा संक्रमण उत्पन्न करते हैं।
- Sex hormones are generally thought to be produced by the testes or ovaries.
आम तौर पर माना जाता है कि सेक्स हार्मोन वृषण या अंडाशय में उत्पन्न होते हैं।
- However, Tamia Harris-Tryon, Associate Professor of dermatology and immunology at UT Southwestern, and her team had previously shown using an advanced technique called liquid chromatography tandem mass spectrometry that the skin also generates and secretes extremely small concentrations of these hormones.
हालांकि, वैज्ञानिकों ने एक उन्नत तकनीक के माध्यम से यह दिखाया कि त्वचा भी इन हार्मोनों का निर्माण और स्राव करती है, वह भी अत्यंत कम मात्रा में।
- The skin is a hormonally responsive organ.
त्वचा एक हार्मोन-संवेदनशील अंग है।
- Its sebaceous glands can produce hormones, making testosterone readily available to microbes living on the skin's surface.
इसकी तेल ग्रंथियां हार्मोन बनाती हैं, जिससे त्वचा पर रहने वाले सूक्ष्मजीवों को टेस्टोस्टेरोन आसानी से उपलब्ध हो जाता है।
- This is relevant to bacteria like Staphylococcus aureus.
यह स्टैफिलोकोकस ऑरियस जैसे बैक्टीरिया के लिए महत्वपूर्ण है।
- They don't begin an infection right away.
वे तुरंत संक्रमण शुरू नहीं करते हैं।
- To test whether testosterone from the skin drives infection, the researchers engineered mice that were unable to produce testosterone in the skin.
त्वचा से उत्पन्न टेस्टोस्टेरोन संक्रमण को बढ़ाता है या नहीं, यह जांचने के लिए शोधकर्ताओं ने ऐसे चूहे विकसित किए जो त्वचा में टेस्टोस्टेरोन नहीं बना सकते थे।
- Female sex hormones, oestradiol and progesterone, didn't affect the bacteria's quorum sensing — where bacteria release chemical signals into their environment and as the bacterial population grows, the concentration of these signals rises.
महिला हार्मोन (एस्ट्रैडियोल और प्रोजेस्टेरोन) का क्वोरम सेंसिंग प्रक्रिया पर कोई प्रभाव नहीं पड़ा — जिसमें बैक्टीरिया रासायनिक संकेत छोड़ते हैं और जैसे-जैसे उनकी संख्या बढ़ती है, इन संकेतों की सांद्रता भी बढ़ती है।
- "Thus, the bacteria not only talk to each other, but the host also talks to the bacteria.
इस प्रकार, बैक्टीरिया न केवल आपस में संचार करते हैं, बल्कि मेजबान भी बैक्टीरिया से संवाद करता है।
- This may help to explain why men are more susceptible to staphylococcal skin infections than women and could lead to new approaches for the treatment or prevention of these infections."
यह समझने में मदद करता है कि पुरुषों में स्टैफिलोकोकस संक्रमण अधिक क्यों होता है और इससे उपचार तथा रोकथाम के नए तरीके विकसित हो सकते हैं।

Beyond antibiotics एंटीबायोटिक्स से आगे

- S. aureus is the leading cause of skin infections worldwide.
एस. ऑरियस विश्वभर में त्वचा संक्रमण का प्रमुख कारण है।
- It commonly colonises the skin and nose but when it enters the bloodstream, it can cause septicæmia, a life-threatening condition that could lead to organ failure.



यह सामान्यतः त्वचा और नाक में रहता है, लेकिन जब यह रक्त में प्रवेश करता है, तो यह सेप्टीसीमिया नामक जानलेवा स्थिति उत्पन्न कर सकता है, जिससे अंग विफलता हो सकती है।

- These infections have been increasingly harder to treat, thanks to the rise of **multi-drug-resistant S. aureus**, a strain that resists **methicillin and other related antibiotics**. इन संक्रमणों का इलाज कठिन होता जा रहा है, क्योंकि **बहु-दवा प्रतिरोधी एस. ऑरियस** विकसित हो चुका है, जो **मेथिसिलिन और अन्य एंटीबायोटिक्स के प्रति प्रतिरोधी** है।
- **Conventional antibiotics try to kill bacteria or inhibit their growth, which creates strong evolutionary pressures that encourage bacteria to develop resistance to antibiotics.** पारंपरिक एंटीबायोटिक्स बैक्टीरिया को मारने या उनकी वृद्धि रोकने का प्रयास करते हैं, जिससे **विकासवादी दबाव** उत्पन्न होता है और बैक्टीरिया में **प्रतिरोध क्षमता विकसित** होती है।
- However, the new study targeted **quorum sensing**, which disrupts the bacteria's ability to **coordinate harmful behaviours** without necessarily threatening their survival. हालांकि, इस नए अध्ययन ने **क्वोरम सेंसिंग को लक्षित किया**, जिससे बैक्टीरिया की **हानिकारक गतिविधियों के समन्वय की क्षमता बाधित** होती है, बिना उनके अस्तित्व को सीधे खतरे में डाले।

Inside the world of shadow libraries: digital piracy, AI, and the fight for access

Preservation and sharing of knowledge online is a common goal for several academics, activists, pirates, hackers, and technologists; what was once an underground movement for access is now entangled in a larger fight involving publishers, governments, and artificial intelligence companies

GS III: S&T
Sahana Venugopal

In early 2026, users of Anna's Archive – one of the world's largest shadow libraries – woke up to find that the site's domain had vanished. Within weeks, its alternative address was also taken down. For many students, researchers, and casual readers, it was a familiar disruption. For the organisations behind such platforms, it was business as usual.

Shadow libraries, or vast and often anonymous databases offering free access to books and academic papers, have long existed in a legal grey zone. For years, they were framed as a quiet rebellion: readers bypassing paywalls, students downloading unaffordable textbooks, teachers sharing educational materials, and knowledge circulating beyond borders.

In 2026, they are something else entirely. What was once an underground movement for access is now entangled in a much larger fight involving publishers, governments, and increasingly, artificial intelligence (AI) companies.

Platforms such as Library Genesis (LibGen), Z-Library, Sci-Hub, and Anna's Archive collectively host or index tens of millions of books and research papers. Some operate as searchable indexes linking to files hosted elsewhere while others directly store massive collections.

The appeal of shadow libraries lies in access. In countries where books are expensive, libraries underfunded, or academic journals locked behind steep paywalls, shadow libraries fill a gap that formal systems have failed to address.

Messages left by users on these unauthorised platforms reflect this reality. A homemaker in Kenya described using Z-Library to build new skills while raising

children. A reader in Lebanon said war and economic instability had made books unaffordable. A student in India credited the platform with making essential course material accessible.

While publishers and international authorities continue to fight back, digital piracy has proven far harder to contain than its physical counterpart. Websites go offline and reappear under new domains. Mirrors proliferate. Communities migrate across platforms. The infrastructure is decentralised, resilient, and often anonymous. Takedowns, while disruptive, rarely deliver lasting results.

The stakes change

In late 2025, Anna's Archive drew global headlines after claiming it had scraped Spotify, collecting hundreds of terabytes of music and metadata. The move pushed shadow libraries beyond books and research into the realm of multimedia aggregation.

The legal response was swift. In January, a U.S. court ordered service providers linked to Anna's Archive to disable access. Soon after, major publishers filed a lawsuit accusing the platform of operating as a commercial piracy hub.

Another case added a new dimension. A group of authors alleged that Nvidia had used shadow library sources, including Anna's Archive, to obtain copyrighted works for training artificial intelligence models. Nvidia denied the claim.

Regardless of the outcome, the implication is significant as shadow libraries are becoming potential data pipelines for AI systems.

This shift has unsettled even some supporters of the Open Access movement. While many users justify piracy as a response to high prices and

restricted access, the idea of large technology companies benefiting from the same datasets introduces a new ethical concern.

Such concerns are enabling new open access systems that expand access to knowledge through legal channels.

"What distinguishes India is the continued and significant role of public-sector-led Diamond Open Access, where neither authors nor readers pay, supported by publicly funded research organisations," said Sridhar Gutam, the convener of Open Access India.

Platforms such as preprint repositories and community-led journals aim to make research widely available without violating copyright laws.

"Open Access India has also been instrumental in launching and supporting no-fee scholarly infrastructures... These initiatives reflect a long-standing commitment to non-commercial, community-governed publishing models," he added.

Mr. Gutam argued that shadow libraries are not a solution, but a symptom.

"The widespread use of shadow libraries reflects persistent access barriers, particularly in low- and middle-income contexts. While such platforms raise clear legal and ethical concerns and cannot be endorsed, focusing solely on enforcement without addressing the underlying access crisis would be insufficient," he said.

Even within the shadow library ecosystem, there is no unified philosophy.

Anna's Archive has positioned itself as a preservation-focused project, aiming to index and safeguard existing collections. It has previously criticised platforms like Z-Library for restricting access to newly uploaded content, arguing that true

openness requires easier sharing and mirroring.

At the same time, Anna's Archive has faced criticism of its own, particularly for offering high-level data access in exchange for large donations or contributions. The possibility of providing datasets to corporations, including AI developers, has divided its user base.

Sci-Hub, one of the most well-known platforms focused on academic papers, has also distanced itself from newer entrants. Its founder, Alexandra Elbakyan, has argued that no other piracy platform matches its impact on access to scientific knowledge.

These disagreements highlight a key point: shadow libraries are not a single movement, but a loose network of projects with overlapping goals and conflicting values.

A widening conflict

The debate over shadow libraries is often framed as a clash between readers and publishers. That framing no longer captures the full picture.

Today, the conflict spans industries and borders. Courts in multiple countries are becoming arenas where these battles play out.

For publishers, the stakes include revenue, intellectual property, brand reputation, and the sustainability of creative industries. For technology companies, the issue is access to vast datasets that can power increasingly sophisticated AI systems. For users, the concerns remain more immediate: affordability, availability, and the freedom to read. These interests do not align neatly.

As legal battles intensify and new actors enter the space, the future of the shadow libraries remains uncertain.

13A. Inside the world of shadow libraries: digital piracy, AI, and the fight for access

शैडो लाइब्रेरी की दुनिया के भीतर: डिजिटल पाइरेसी, एआई और पहुंच के लिए संघर्ष

- Preservation and sharing of knowledge online is a common goal for several academics, activists, pirates, hackers, and technologists; what was once an underground movement for access is now entangled in a larger fight involving



publishers, governments, and artificial intelligence companies

ऑनलाइन ज्ञान का संरक्षण और साझा करना कई शिक्षाविदों, कार्यकर्ताओं, पाइरेट्स, हैकर्स और तकनीकी विशेषज्ञों का एक साझा लक्ष्य है; जो कभी पहुंच के लिए एक भूमिगत आंदोलन था, वह अब प्रकाशकों, सरकारों और कृत्रिम बुद्धिमत्ता कंपनियों से जुड़े एक बड़े संघर्ष में उलझ गया है

- In early 2026, users of **Anna's Archive** — one of the world's largest **shadow libraries** — woke up to find that the site's domain had vanished.
2026 की शुरुआत में, **अन्ना आर्काइव**, जो दुनिया की सबसे बड़ी **शैडो लाइब्रेरी** में से एक है, के उपयोगकर्ताओं ने पाया कि इसका डोमेन गायब हो गया।
- Platforms such as **LibGen, Z-Library, Sci-Hub, and Anna's Archive** host millions of books and papers.
लिबजेन, जेड-लाइब्रेरी, साइ-हब और अन्ना आर्काइव जैसे प्लेटफॉर्म लाखों किताबें और शोध पत्र उपलब्ध कराते हैं।
- **Websites reappear under new domains and systems remain decentralised and resilient.**
वेबसाइटें नए डोमेन के साथ फिर से उभरती हैं और ये प्रणाली **विकेन्द्रीकृत और मजबूत** बनी रहती है।
- In late 2025, Anna's Archive claimed it had scraped **Spotify data**, expanding into multimedia.
2025 के अंत में, अन्ना आर्काइव ने दावा किया कि उसने **स्पॉटिफाई डेटा** संग्रहित किया और मल्टीमीडिया क्षेत्र में प्रवेश किया।
- This expanded shadow libraries beyond books into **music and data aggregation**.
इससे शैडो लाइब्रेरी का दायरा पुस्तकों से बढ़कर **संगीत और डेटा संग्रह** तक पहुंच गया।
- Another case alleged that **Nvidia used shadow library data for AI training**.
एक अन्य मामले में आरोप लगाया गया कि **एनविडिया ने एआई प्रशिक्षण के लिए शैडो लाइब्रेरी डेटा का उपयोग किया**।
- **Nvidia denied the claim.**
एनविडिया ने इस आरोप से इनकार किया।
- Regardless of the outcome, **shadow libraries are becoming data sources for AI systems**.
परिणाम चाहे जो हो, शैडो लाइब्रेरी अब **एआई के लिए डेटा स्रोत** बनती जा रही हैं।
- **Sci-Hub, led by Alexandra Elbakyan**, has distanced itself from newer platforms.
साइ-हब, जिसकी स्थापना **अलेक्जेंद्रा एल्बाक्यान** ने की, ने नए प्लेटफॉर्म से दूरी बनाई है।
- **For publishers, the stakes include revenue, intellectual property, and sustainability.**
प्रकाशकों के लिए इसमें **राजस्व, बौद्धिक संपदा और उद्योग की स्थिरता** शामिल है।
- **For technology companies, it is about access to large datasets for AI.**
तकनीकी कंपनियों के लिए यह **एआई के लिए बड़े डेटा तक पहुंच** का मुद्दा है।
- **For users, the concerns are affordability, availability, and freedom to read.**
उपयोगकर्ताओं के लिए मुख्य मुद्दे **सुलभता, उपलब्धता और पढ़ने की स्वतंत्रता** हैं।
- जैसे-जैसे कानूनी संघर्ष बढ़ रहे हैं, **शैडो लाइब्रेरी का भविष्य अनिश्चित** बना हुआ है।



What an Oracle foretells about jobs and careers in the AI era

Of late, any enterprise announcing layoffs has an 'Impacted by AI' label; though companies like Block, Atlassian and Oracle have their own contexts for layoffs, the media narrative suggests AI impact, we are refusing to acknowledge their declining stock price in the last six months as a larger factor

GS III: S&T

NEWS ANALYSIS

Kamal Karanth

Knowing what you know now, would you have taken a different career path after college or advised your family and friends to pursue something else altogether? The other day, a former high school classmate called up to ask if his daughter, who wants to pursue computer science engineering, was making the right choice in a world filled with AI noise. I told him I am no oracle on the future of jobs. But if I were him, I would bet on his girl, who was not only a topper in Std XII but also passionate about the subject.

AI-washing layoffs

Of late, any enterprise announcing layoffs has an 'Impacted by AI' label on it. Though companies like Block, Atlassian and Oracle have their own contexts for layoffs, the media narrative suggests AI impact. We are refusing to acknowledge their declining stock price in the last six months as a larger factor.

It might be worthwhile to share the details surrounding a recent layoff, where I was almost a fly on the wall. In this tech company, the CXO informed his VPs that the global HQ had given him a headcount reduction target. He asked how many full-time employees (FTE) could be laid off? The first solution the



Bleak future: No longer can we celebrate hiring of lakhs of engineering students by big firms. FILE PHOTO

VPs offered was, "Can we reduce the number of our contractors?" When reminded that the target was FTEs, each manager came up with a few names. The CXO didn't even ask why those names were picked. There were no discussions about whether AI would replace the laid-off employees. It was redundancy as usual. When I read about this layoff story in the news later, it appeared with an AI flavour.

Labour fallacy

Significantly, the top 10 AI companies, including OpenAI, Anthropic, and Perplexity, have added 7,500 new employees in the last 12 months. Despite the vibe-coding gains and telling the world to get rid of software engineers, new-age AI companies are adding more engineers them-



Companies are cutting jobs for 3 different reasons: cost that got out of hand, data centre financial commitments, and some genuine AI-driven rebalancing

selves. Perhaps we should hold our horses before writing a death sentence on software engineering as a profession. Marc Benioff, founder and CEO of Salesforce, recently said, "Companies are cutting jobs for three very different reasons: cost that got out of hand, data centre financial commitments, and some genuine AI-driven rebalancing." Treating them as one story is a mistake.

Marc Andreessen, co-founder of venture capital

fund Andreessen Horowitz, has an interesting take. His VC firm has invested not only in some marquee new-age companies like Figma, Databricks, Stripe and Roblox but also GitHub, Airbnb, Twitter, and Pinterest. Despite major bets on the future of AI with companies like OpenAI, Elon Musk's xAI, and Mistral AI, Andreessen recently said most large companies are overstaffed by 25-75% due to excessive pandemic-era hiring and are using AI as a cover to cut jobs. He called it the 'lump of labour' fallacy – the mistaken belief that there is a fixed amount of work to be done in an economy, thereby meaning that if one person works more or faster, another works less. It incorrectly assumes that rising automation, immigra-

tion, or productivity causes unemployment.

Future tense

Unnoticed amid the news of war and AI, mass hiring in the tech sector has seen a structural shift. No longer can we celebrate the hiring of lakhs of engineering students by large tech firms. The numbers have dwindled due to macro-economic conditions, and with the anticipation that AI can do much of the entry-level grunt work. India, though, still holds promise with 100 new global capability centres setting up shop. However, with 2.5 lakh computer science engineers graduating in India each year, the surface area for new tech jobs is shrinking. Going by the recent Claude AI agent source code leak, the roadmap for the three capabilities Claude has lined up as WIP is interesting – proactive mode, dream mode and autonomous mode, which may bring the Agentic AI closer to non-binary human capabilities.

According to a Goldman Sachs analysis of 40 years of labour market data, workers who lost jobs due to technological changes saw an average 3% drop in real earnings compared to those displaced by stable roles. In the ten years after losing a job, such workers saw earnings growth that was 10 percentage points lower than those who remained employed. Looks scary?

A country that exported

close to \$300 billion worth of software services last year has been the dream destination for the 8.5 lakh freshly minted engineers each year.

This cohort of engineers has mostly chose the IT sector over others like manufacturing, given the salary levels and the sector's continuous growth over the last three decades. From a time when every neighbourhood kid we knew went onsite, to one where someone close to us is getting laid off, the tech reset is hitting hard. Most jobseekers' CVs are now laced with some AI skill; every leader has to have familiarity with Open Claw and how Claude is simplifying the workflow. It's become tough to differentiate between fluff and reality. All consulting companies are putting out surveys that preach how AI and human beings working together make for a productive workforce.

Suzy Welch's best-selling self-help book *Becoming You* has a take on 'purpose'. She writes that it requires taking action to "go through the fire" of self-discovery and purposefully constructing the bridge between the life you are currently living and the life you want to live. Let's hope that AI brings the best of us for us and makes it a breakthrough of our lifetime, and not a Kodak moment for us.

(Kamal Karanth is co-founder of Xpheno, a specialist staffing firm)

- When reminded that the target was FTEs, each manager came up with a few names. जब बताया गया कि लक्ष्य FTE है, तो सभी ने कुछ नाम सुझाए।
- The CXO didn't even ask why those names were picked. CXO ने यह भी नहीं पूछा कि ये नाम क्यों चुने गए।
- There were no discussions about whether AI would replace the laid-off employees. यह चर्चा ही नहीं हुई कि AI इन कर्मचारियों की जगह लेगा या नहीं।
- It was redundant as usual. यह सामान्य अतिरिक्तता (redundancy) थी।
- When I read about this layoff story in the news later, it appeared with an AI flavour. बाद में खबर में इसे AI से जुड़ा हुआ बताया गया।

Labour fallacy

श्रम भ्रम (Labour Fallacy)

- Significantly, the top 10 AI companies, including OpenAI, Anthropic, and Perplexity, have added 7,500 new employees in the last 12 months. महत्वपूर्ण बात यह है कि OpenAI, Anthropic और Perplexity जैसी कंपनियों ने 7500 नए कर्मचारी जोड़े हैं।



- Despite the gains, AI companies are adding more engineers themselves. AI कंपनियां खुद अधिक इंजीनियर भर्ती कर रही हैं।
- Perhaps we should hold our horses before writing a death sentence on software engineering as a profession. हमें सॉफ्टवेयर इंजीनियरिंग को खत्म घोषित करने से पहले सावधानी बरतनी चाहिए।
- Marc Benioff said companies cut jobs due to cost issues, data centre commitments, and some AI-driven rebalancing. मार्क बेनिऑफ ने कहा कि कंपनियां लागत, डेटा सेंटर खर्च और AI पुनर्संतुलन के कारण छंटनी करती हैं।
- However, with 2.5 lakh engineers graduating each year, job opportunities are shrinking. हर साल 2.5 लाख इंजीनियर निकलने से अवसर कम हो रहे हैं।
- India exports \$300 billion software services annually. भारत हर साल 300 अरब डॉलर का सॉफ्टवेयर निर्यात करता है।
- 8.5 lakh engineers graduate every year. हर साल 8.5 लाख इंजीनियर स्नातक होते हैं।

GS Paper III: Environment		13 April 2026
TOPICS COVERED		
13A	What are sentinel species? सेंटिनल प्रजातियाँ क्या हैं?	

Nature's signals

GS III: Environment



Q: What are sentinel species?

A: A sentinel species is a species whose members' health signals the condition of the ecosystem in which they

live. Scientists monitor them because they are among the first to respond to stressors in their environment, such as pollution and disease, and their response also tends to be more apparent than most other species.

In other words, they can provide early warnings of ecosystem decline.

Sentinel species tend to occupy a fixed territory and live long enough to accumulate toxins. They also have physiologies that amplify the effects of environmental change. Thus, when something goes wrong in their habitat, they show it first.

The most common example is frogs. Their skin is permeable and absorbs whatever enters the water or soil around them, making them very sensitive to pesticides and pathogens. A declining frog population has often been a sign of wider ecological stress, even before other indicators detect the problem.

Canaries in coal mines worked on the same principle: the bird's faster metabolism made it succumb to carbon monoxide before human miners could



The IUCN declared the emperor penguin to be an endangered species on April 9. AFP

notice anything. Researchers also use honeybees to track agricultural chemical loads, polar bears to monitor Arctic contaminant accumulation, and certain fish species to detect industrial runoff.

On April 9, the International Union for Conservation of Nature declared the emperor penguin to be an endangered species. Emperor penguins are sentinel species for warming in the Antarctic region. Climate change is projected to halve their population by the 2080s.

For feedback and suggestions for 'Science', please write to science@thehindu.co.in with the subject 'Daily page'

13A. What are sentinel species? सेंटिनल प्रजातियाँ क्या हैं?

- A: A **sentinel species** is a species whose members' health signals the **condition of the ecosystem** in which they live.

एक सेंटिनल प्रजाति वह होती है जिसके सदस्यों का स्वास्थ्य उस पारिस्थितिकी तंत्र की स्थिति को दर्शाता है जिसमें वे रहते हैं।

- Scientists monitor them because **they are among the first to respond to stressors in their environment, such as pollution and disease, and their response also tends to be more apparent than most other species.**

वैज्ञानिक इनकी निगरानी करते हैं क्योंकि ये पर्यावरणीय तनाव कारकों जैसे प्रदूषण और रोग के प्रति सबसे पहले प्रतिक्रिया देते हैं, और इनकी प्रतिक्रिया अन्य प्रजातियों की तुलना में अधिक स्पष्ट होती है।

- In other words, **they can provide early warnings of ecosystem decline.** दूसरे शब्दों में, ये पारिस्थितिकी तंत्र के पतन की

प्रारंभिक चेतावनी प्रदान करते हैं।

- **Sentinel species tend to occupy a fixed territory and live long enough to accumulate toxins.** सेंटिनल प्रजातियाँ सामान्यतः स्थिर क्षेत्र में रहती हैं और इतना लंबा जीवन जीती हैं कि वे विषाक्त पदार्थों को संचित कर सकें।
- **They also have physiologies that amplify the effects of environmental change.** इनकी शारीरिक संरचना ऐसी होती है जो पर्यावरणीय परिवर्तन के प्रभावों को बढ़ा देती है।



- Thus, when something goes wrong in their habitat, they show it first.
इस प्रकार, जब उनके आवास में कुछ गड़बड़ होती है, तो वे इसे सबसे पहले प्रदर्शित करते हैं।
- The most common example is frogs.
सबसे सामान्य उदाहरण मेंढक हैं।
- Their skin is permeable and absorbs whatever enters the water or soil around them, making them very sensitive to pesticides and pathogens.
इनकी त्वचा पारगम्य होती है और आसपास के पानी या मिट्टी में मौजूद पदार्थों को अवशोषित कर लेती है, जिससे वे कीटनाशकों और रोगजनकों के प्रति अत्यधिक संवेदनशील होते हैं।
- A declining frog population has often been a sign of wider ecological stress, even before other indicators detect the problem.
मेंढकों की घटती संख्या अक्सर व्यापक पारिस्थितिक तनाव का संकेत होती है, इससे पहले कि अन्य संकेतक समस्या को पहचानें।
- Canaries in coal mines worked on the same principle: the bird's faster metabolism made it succumb to carbon monoxide before human miners could notice anything.
कोयला खदानों में उपयोग किए गए कैनरी पक्षी भी इसी सिद्धांत पर काम करते थे: पक्षी का तेज चयापचय उसे कार्बन मोनोऑक्साइड के प्रभाव से जल्दी प्रभावित कर देता था, इससे पहले कि मानव खनिक कुछ समझ पाते।
- Researchers also use honeybees to track agricultural chemical loads, polar bears to monitor Arctic contaminant accumulation, and certain fish species to detect industrial runoff.
शोधकर्ता मधुमक्खियों का उपयोग कृषि रसायनों की मात्रा को ट्रैक करने के लिए, ध्रुवीय भालुओं का उपयोग आर्कटिक प्रदूषण संचय की निगरानी के लिए, और कुछ मछली प्रजातियों का उपयोग औद्योगिक अपशिष्ट प्रवाह का पता लगाने के लिए करते हैं।
- On April 9, the International Union for Conservation of Nature declared the emperor penguin to be an endangered species.
9 अप्रैल को अंतर्राष्ट्रीय प्रकृति संरक्षण संघ ने सम्राट पेंगुइन को लुप्तप्राय प्रजाति घोषित किया।
- Emperor penguins are sentinel species for warming in the Antarctic region.
सम्राट पेंगुइन अंटार्कटिक क्षेत्र में ताप वृद्धि के संकेतक हैं।
- Climate change is projected to halve their population by the 2080s.
अनुमान है कि जलवायु परिवर्तन के कारण 2080 के दशक तक इनकी जनसंख्या आधी हो जाएगी।

GS Paper III: Disaster Management		13 April 2026
TOPICS COVERED		
13A	Telangana's trauma policy targets eight-minute emergency response तेलंगाना की ट्राँमा नीति का लक्ष्य आठ मिनट में आपातकालीन प्रतिक्रिया	



Telangana's trauma policy targets eight-minute emergency response

GS III: DM
Siddharth Kumar Singh
HYDERABAD

With road accidents claiming thousands of lives each year, Telangana is betting on speed as the difference-maker. Its newly unveiled Trauma Care Policy aims to bring down emergency response time to under 8-9 minutes, nearly halving the current 13-to-15-minute window.

The policy lays out a system-wide overhaul of trauma care. It aims to cut down the time by strengthening emergency response systems, mapping accident-prone black spots with inputs from the NHAI and police, and strategically placing trauma centres



State Health Minister C. Damodar Raja Narasimha launches the Trauma Care Policy on World Health Day on April 7. SIDDHANT THAKUR

along high-risk corridors, Director of Medical Education (DME) A. Narendra Kumar said.

India recorded 1.73 lakh deaths from road crashes in 2023, with Telangana contributing around 5-7% of these cases.

Mr. Kumar added that a key shift of this policy is to move away from a fragmented system towards a unified trauma care model under the principle of 'One Patient, One System, One Protocol'. The aim is to ensure that trauma victims

are stabilised quickly, transported efficiently and treated at the appropriate facility without delays.

To operationalise this vision, the health department will implement a structured four-level trauma care network.

Level Four centres will function as pre-hospital units, including ambulances and mobile emergency services. Level Three centres, located in district hospitals, will handle initial treatment. Level Two centres, typically medical colleges, will provide advanced trauma care. Level One centres will serve as apex institutions, offering comprehensive care for complex trauma cases.

13A. Telangana's trauma policy targets eight-minute emergency response तेलंगाना की ट्राँमा नीति का लक्ष्य आठ मिनट में आपातकालीन प्रतिक्रिया

- With road accidents claiming thousands of lives each year, Telangana is betting on speed as the difference maker.
हर साल सड़क दुर्घटनाओं में हजारों जानें जाने के कारण, तेलंगाना गति को मुख्य समाधान के रूप में अपना रहा है।
- Its newly unveiled Trauma Care Policy aims to bring down emergency response time to under 8-9 minutes, nearly halving the current 13-to-15-minute window.
नई घोषित ट्राँमा केयर पॉलिसी का लक्ष्य आपातकालीन प्रतिक्रिया समय को 13-15 मिनट से घटाकर 8-9 मिनट करना है।
- The policy lays out a system-wide overhaul of trauma care.
यह नीति ट्राँमा केयर सिस्टम में व्यापक सुधार का प्रस्ताव रखती है।
- It aims to cut down the time by strengthening emergency response systems, mapping accident-prone black spots with inputs from the NHAI and police, and strategically placing trauma centres along high-risk corridors, Director of Medical Education (DME) A. Narendra Kumar said.
यह समय कम करने के लिए आपातकालीन प्रतिक्रिया प्रणाली को मजबूत, दुर्घटना संभावित ब्लैक स्पॉट की पहचान (NHAI और पुलिस के सहयोग से) और उच्च जोखिम वाले मार्गों पर ट्राँमा केंद्र स्थापित करने पर जोर देती है, जैसा कि डीएमई ए. नरेंद्र कुमार ने कहा।
- India recorded 1.73 lakh deaths from road crashes in 2023, with Telangana contributing around 5-7% of these cases.
भारत में 2023 में 1.73 लाख सड़क दुर्घटना मौतें दर्ज हुईं, जिनमें से 5-7% मामले तेलंगाना से थे।
- Mr. Kumar added that a key shift of this policy is to move away from a fragmented system towards a unified trauma care model under the principle of 'One Patient, One System, One Protocol'.



Protocol'

कुमार ने कहा कि इस नीति का मुख्य बदलाव **विखंडित प्रणाली** से हटकर **एकीकृत ट्रॉमा केयर मॉडल** अपनाना है, जो **'One Patient, One System, One Protocol'** सिद्धांत पर आधारित है।

- **The aim is to ensure that trauma victims are stabilised quickly, transported efficiently and treated at the appropriate facility without delays.**
इसका उद्देश्य यह सुनिश्चित करना है कि **घायलों को जल्दी स्थिर किया जाए**, उन्हें **कुशलता से स्थानांतरित किया जाए** और उचित स्थान पर **बिना देरी इलाज** मिले।
- **To operationalise this vision, the health department will implement a structured four-level trauma care network.**
इस दृष्टि को लागू करने के लिए, **स्वास्थ्य विभाग एक संरचित चार-स्तरीय ट्रॉमा केयर नेटवर्क** लागू करेगा।
- **Level Four centres will function as pre-hospital units, including ambulances and mobile emergency services.**
लेवल 4 केंद्र प्री-हॉस्पिटल इकाइयों के रूप में काम करेंगे, जिनमें **एंबुलेंस और मोबाइल आपात सेवाएं** शामिल होंगी।
- **Level Three centres, located in district hospitals, will handle initial treatment.**
लेवल 3 केंद्र, जो जिला अस्पतालों में स्थित होंगे, **प्रारंभिक उपचार** करेंगे।
- **Level Two centres, typically medical colleges, will provide advanced trauma care.**
लेवल 2 केंद्र, जो आमतौर पर मेडिकल कॉलेज होंगे, **उन्नत ट्रॉमा केयर** प्रदान करेंगे।
- **Level One centres will serve as apex institutions, offering comprehensive care for complex trauma cases.**
लेवल 1 केंद्र शीर्ष संस्थानों के रूप में कार्य करेंगे और **जटिल ट्रॉमा मामलों के लिए व्यापक उपचार** प्रदान करेंगे।