

Daily Current Affairs



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“The paper doesn’t test luck—it tests preparation under pressure.”

DELIMITATION MOVIE
BJP used women as a shield, says Venugopal
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Core sector activity contracts 0.4% in March
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NEARBY

19 Indian fishers being repatriated from Sri Lanka
COLOMBO
A total of 19 fishermen from India, who were detained by Sri Lankan Navy for allegedly poaching in its territorial waters, are being repatriated and will return soon, the High Commission of India in Colombo has said. ■ PAGE 2

Death toll hits 25 in Tamil Nadu fireworks blast
VIRUDHACHARI, CHENNAI
The death toll in the blast that took place at a fireworks unit in Virudhachari district of Tamil Nadu rose to 25, with two more workers succumbing to burns early on Monday. Six others, a 12-year-old boy among them, are undergoing treatment. ■ PAGE 3

Digital arrests an offence against dignity, says CJI
NEW DELHI
Chief Justice of India Surya Prasad on Monday flagged digital arrest scams as the most heinous among cyber crimes which not only result in financial loss to victims but also a "blistering sense of violation", it must be seen as an offence against dignity, he said. ■ PAGE 5

'Dovah's visit to Riyadh is part of outreach efforts'
NEW DELHI
National Security Advisor Ajit Doval's surprise one day visit to Riyadh was part of an outreach by the government amid the West Asian conflict, and took place, according to the Ministry of External Affairs, on Prime Minister Narendra Modi's instructions. ■ PAGE 9

India is in breach of its obligations: UN rapporteur
NEW DELHI
India is violating its obligations under international law by associating with Israel, the Special Rapporteur on the Occupied Palestinian Territories, Francesco Albanese, said in an interview with The Hindu. ■ PAGE 14

Iran yet to decide on fresh round of talks; Trump to keep blockade

Tehran condemns U.S. attack on an Iran-flagged vessel in the Gulf of Oman, says it will make 'necessary decisions about the future path with careful consideration of its national interests; naval blockade to remain until a deal is reached, says Trump

Steady today
Tehran said on Monday it had yet to decide on joining a new round of peace talks with the United States or Pakistan, citing "bad faith" and "historical mistrust", while U.S. President Donald Trump said the naval blockade imposed on Iran would remain in place "until a deal is reached".



Tanker at sea: The tanker ship Jumbo was reportedly hit by the U.S. Navy on Sunday night. Reuters

Iran said on Monday it had yet to decide on joining a new round of peace talks with the United States or Pakistan, citing "bad faith" and "historical mistrust", while U.S. President Donald Trump said the naval blockade imposed on Iran would remain in place "until a deal is reached".

President said in a statement. Last week, Iran said it would reopen the Strait of Hormuz to international vessels, after Mr. Trump announced a 10-day ceasefire in Lebanon between Israel and Hezbollah. Mr. Trump "blamed" Iran for the move, but said that a U.S. blockade of Iranian ports, which he announced on April 12 after the failure of the first round of bilateral talks, would stay in place until both sides reach a deal. Iran then took a U-turn from its previous announcement and requested to control over the critical waterway on Saturday, the Islamic Revolutionary Guard Corps (IRGC) Navy fired at two tankers, preventing them from crossing the Strait of Hormuz. President Maanid Pashchian said the U.S. was seeking the country's surrender and that Iran would never submit to force.

Jumbo power



Elephant's guided by their mahouts, take part in a traditional festival during the Goumna Festival at Bhubaneswar district of Odisha on Monday. The festival coincides with Maghi Mela and is celebrated since centuries in Bhubaneswar. Reuters

A day before inauguration by PM, fire breaks out at Rajasthan refinery

Rajasthanese Ghoski
RAJASTHAN
A fire broke out in a refinery-cum-petrochemical complex in Rajasthan's Ghoski district on Monday afternoon, a day before Prime Minister Narendra Modi was to inaugurate it. The Ministry of Petroleum and Natural Gas (MoPNG) said the fire took place in the vicinity of the crude distillation unit of the HPRCL Rajasthan Refinery Limited (HRRCL) refinery. Consequently, the in-

auguration has been postponed, it said.
No casualties
"Due to an unfortunate fire incident in the vicinity of the crude distillation unit at the HPRCL refinery, the scheduled dedication of the refinery by the Honourable Prime Minister on April 21 has been postponed," the Ministry said on social media. "A revised date for the dedication will be announced in due course," it added.
The Ministry said there

9.8 lakh voters deleted from Odisha rolls ahead of SIR

Rajasthanshar Bhatli
BHubaneswar
The names of as many as 9.8 lakh voters have been deleted from the electoral rolls in Odisha during a major revision ahead of the special intensive revision (SIR). "However, a substantial number of complaints have been received regarding wrongful deletion of names, the Office of the Chief Electoral Officer to the Electoral Registration Officers on April 18.

had been bought under control. The crude distillation unit at a refinery acts as a sorting station that sends raw crude into various fractions before they can be sent to varied processing units to be made into fuel products.
Joint venture
The HPRCL Rajasthan Refinery Limited (HRRCL) refinery, located in the Bahadurgarh district of Rajasthan, is a joint venture between the petrochemical complex with an overall capacity of

21 killed, 61 injured after bus falls into gorge in Udhampur

Rescue operations underway after a bus plunged down a hillside in Udhampur district of J&K on Monday. ■ PAGE 16



Rescue operations underway after a bus plunged down a hillside in Udhampur district of J&K on Monday. ■ PAGE 16

The Hindu Bureau
JAMMU
Twenty-one people were killed and over 60 injured after an overcrowded passenger bus tumbled down a hillside in Udhampur district of Jammu and Kashmir on Monday. The bus, which was travelling in the direction of the town, overturned on the road below. The bus was en route to Udhampur from Rannagar when the accident occurred around 10 a.m. Officials said those travelling in the autohatch were also injured.
The bus driver may have lost control while negotiating a sharp turn in Kagori village, causing the vehicle to plunge off the road. Shiv Kumar Sharma, Deputy Inspector-General of Police, Udhampur-Beas Range, said, "The bus rolled down around 60-70 feet," he said.
Union Minister Jhendra Singh, who represents the Udhampur constituency in the Lok Sabha, confirmed the death toll. "Twenty-one casualties so far and 61 injured. Injured have been shifted to Udhampur Hospital, while one more seriously injured is being shifted to Government Medical College Jammu... All possible assistance is being provided," he said in a post on social media platform X.
Local people and teams from multiple security agencies worked together to transport the injured to the hospital. The Army said its units deployed in the area rescued dozens of civilians after the accident. "It plunged nearly 70 feet into a gorge. The impact

ISRAELI WARREN LEBANON

led to multiple casualties, with several passengers trapped inside the mangled vehicle," the Army said in a statement.
Rescue operation
It said that troops from a battalion of Gorkha Rifles, who were en route to Sarnobat for training, "were the first to reach the site". "They immediately launched rescue operations, evacuating trapped passengers from the wreckage under challenging terrain conditions," the Army said.
An ad-hoc incident control centre was quickly established at the site under the Commanding Officer of a battalion of IPSGA Regiment to coordinate rescue and relief efforts. "A total of 10 teams, comprising personnel from Dogra Regiment and Gorkha Rifles, were mobilised for the operation," it said.
President Droupadi Murmu and Prime Minister Narendra Modi condoned the loss of lives in the accident. "An ex-gratia of ₹2 lakh from PMRRF would be given to the next of kin of each deceased, while the injured would be given ₹50,000," the Prime Minister's Office said in a statement.
Expressing grief over the incident, Chief Minister Omar Abdullah said the government would ensure a thorough investigation into the circumstances leading to the tragedy. He announced an ex-gratia of ₹2 lakh to the next of kin of each deceased, ₹1 lakh to those seriously injured, and ₹25,000 to persons who sustained minor injuries.

A day before inauguration by PM, fire breaks out at Rajasthan refinery

Saptaparno Ghosh

BALTORA

A fire broke out in a refinery-cum-petrochemical complex in Rajasthan's Balotra district on Monday afternoon, a day before Prime Minister Narendra Modi was to inaugurate it.

The Ministry of Petroleum and Natural Gas (MoPNG) said the fire took place in the vicinity of the crude distillation unit of the HPCL Rajasthan Refinery Limited (HRRL) refinery. Consequently, the in-

auguration has been postponed, it said.

No casualties

"Due to an unfortunate fire incident in the vicinity of the crude distillation unit at the HRRL refinery, the scheduled dedication of the refinery by the Honourable Prime Minister on April 21 has been postponed," the Ministry said on social media. "A revised date for the dedication will be announced in due course," it added.

The Ministry said there



Smoke rises from the HPCL Rajasthan Refinery in Balotra district of Rajasthan on Monday. PTI

were no reports of any casualties, and an investigation had been ordered to

ascertain the cause and suggest remedial measures. It stated that the fire

had been bought under control. The crude distillation unit in a refinery acts as a sorting station that distils raw crude into varied fractions before they can be sent to varied processing units to be made into final products.

Joint venture

The HPCL Rajasthan Refinery Limited (HRRL) refinery, located in the Balotra district of Rajasthan, is a greenfield refinery-cum-petrochemical complex with an overall capacity of

9 million metric tonnes per annum (MMTPA) with 2.4 MMTPA accounting for its petrochemical production capacity.

HRRL is a ₹79,459 crore joint venture between HPCL and the Government of Rajasthan, with the latter holding an equity stake of 26%.

Rajasthan Chief Minister Bhajanlal Sharma in a social media post, described the situation as "unfortunate". Separately, he added in his post, "The grand inauguration of this refin-

ery, which is a symbol of hope for the people of the State, would soon be done by the Honourable Prime Minister himself."

Voicing similar concerns, Ashok Gehlot, former Chief Minister and Mr. Sharma's colleague from the Opposition, also wrote on his social media, "The refinery is a matter of pride for all the people of Rajasthan, a project whose inauguration is scheduled for tomorrow. Such an incident at this time is extremely unfortunate."

- **Fire broke out in the crude distillation unit of the HPCL Rajasthan Refinery Limited (HRRL) in Balotra district, Rajasthan — a day before PM Modi was to inaugurate it.**
- राजस्थान के बालोतरा जिले में **HPCL राजस्थान रिफाइनरी लिमिटेड (HRRL)** की कच्चे तेल आसवन इकाई में आग लगी — **PM मोदी द्वारा उद्घाटन से एक दिन पहले।**
- **Inauguration postponed** by Ministry of Petroleum and Natural Gas (MoPNG); no casualties reported; investigation ordered.
- **उद्घाटन स्थगित** — MoPNG द्वारा; कोई हताहत नहीं; जाँच के आदेश।
- HRRL is a **₹79,459 crore joint venture** between **HPCL** and the **Government of Rajasthan** (Rajasthan holds 26% equity stake).
- HRRL **HPCL और राजस्थान सरकार के बीच ₹79,459 करोड़ का संयुक्त उद्यम है (राजस्थान 26% इक्विटी)।**
- HRRL is a **greenfield refinery** with **9 MMTPA capacity** and **2.4 MMTPA petrochemical production capacity** — India's largest greenfield refinery project.
- HRRL **9 MMTPA क्षमता और 2.4 MMTPA पेट्रोकेमिकल उत्पादन क्षमता के साथ ग्रीनफील्ड रिफाइनरी** — भारत का सबसे बड़ा ग्रीनफील्ड रिफाइनरी प्रोजेक्ट।
- The fire highlights critical issues of **industrial safety in refineries, greenfield vs brownfield projects, and energy infrastructure development** in India.
- आग रिफाइनरियों में औद्योगिक सुरक्षा, ग्रीनफील्ड बनाम ब्राउनफील्ड परियोजनाएं, और ऊर्जा बुनियादी ढाँचा विकास के महत्वपूर्ण मुद्दों को उजागर करती है।

- **HRRL** is a brand-new oil refinery being built in Rajasthan by HPCL (a government oil company) in partnership with the Rajasthan government. It can process 9 million tonnes of crude oil per year and also make petrochemicals.
- **HRRL HPCL** (एक सरकारी तेल कंपनी) द्वारा राजस्थान सरकार के साथ साझेदारी में राजस्थान में बनाई जा रही एक बिल्कुल नई तेल रिफाइनरी है।
- A refinery is like a giant "sorting machine" — it takes crude oil (raw petroleum) and distills it into different products like petrol, diesel, LPG, jet fuel, kerosene, and petrochemical feedstocks.
- रिफाइनरी एक विशाल "सॉर्टिंग मशीन" की तरह है — कच्चे तेल को पेट्रोल, डीजल, LPG, जेट ईंधन, केरोसीन, और पेट्रोकेमिकल फीडस्टॉक में आसवित करती है।
- The **crude distillation unit (CDU)** is the first and most important step in any refinery — raw crude enters here and gets separated into different fractions based on boiling points.
- **कच्चे तेल आसवन इकाई (CDU)** किसी भी रिफाइनरी में पहला और सबसे महत्वपूर्ण कदम है — कच्चा तेल यहाँ प्रवेश करता है और क्वथनांक के आधार पर अलग हो जाता है।
- The fire in the CDU just before inauguration — while concerning — was controlled without casualties, and the incident will delay India getting a major new refinery that Rajasthan needs for development and India needs for energy security.
- उद्घाटन से ठीक पहले CDU में आग — चिंताजनक होते हुए भी बिना हताहत के नियंत्रित, और घटना भारत को एक बड़ी नई रिफाइनरी मिलने में देरी करेगी।

D1. What Happened? / क्या हुआ?

- **Location:** Balotra district, Rajasthan — HRRL (HPCL Rajasthan Refinery Limited) refinery
- **When:** Monday afternoon — one day before PM Modi was scheduled to inaugurate it (April 21)
- **What:** Fire in the **crude distillation unit (CDU)** of the refinery
- **Casualties:** None reported
- **Status:** Fire brought under control
- **Investigation:** Ordered to ascertain cause and suggest remedial measures
- **Inauguration:** Postponed; revised date to be announced; MoPNG issued statement

D2. About HRRL / HRRL के बारे में

- **Full name:** HPCL Rajasthan Refinery Limited (HRRL)
- **Type:** Greenfield refinery-cum-petrochemical complex
- **Location:** Balotra district, Rajasthan (earlier Barmer district — reorganised)
- **Overall capacity:** 9 MMTPA (Million Metric Tonnes Per Annum)
- **Petrochemical capacity:** 2.4 MMTPA
- **Project cost:** ₹79,459 crore — India's largest greenfield refinery investment
- **Joint venture:**
 - **HPCL** (Hindustan Petroleum Corporation Limited) — majority stake
 - **Government of Rajasthan** — 26% equity stake
- **Significance:** India's largest greenfield refinery project; a symbol of hope for Rajasthan

D3. What is a Crude Distillation Unit (CDU)? / कच्चे तेल आसवन इकाई क्या है?

- CDU is the **first processing unit** in any refinery — acts as a "**sorting station**"
- **Process:** Crude oil is heated; different fractions condense at different temperatures in distillation towers
- **Products:** LPG (top), naphtha, kerosene, diesel, fuel oil (bottom), residue
- **Why critical:** CDU is the entry point — if it fails, entire refinery stops; also highly flammable due to hydrocarbons
- **CDU:** किसी भी रिफाइनरी में **पहली प्रसंस्करण इकाई** — "**सॉर्टिंग स्टेशन**" के रूप में कार्य; हाइड्रोकार्बन के कारण अत्यधिक ज्वलनशील

History / इतिहास

- **History of India's oil sector:** First oil well drilled at Digboi, Assam (1889); Indian Refineries Ltd established (1958); merged with IOC (1964); nationalisation of oil companies (1970s).
- **भारत के तेल क्षेत्र का इतिहास:** 1889 डिगबोई (असम); 1958 इंडियन रिफाइनरीज; 1970 के दशक में राष्ट्रीयकरण।
- **Rajasthan's oil:** Oil discovered in Barmer basin (Mangala fields) by Cairn India in 2004 — major discovery; feeds pipelines to refineries; HRRL being built to process Rajasthan's own crude.
- **राजस्थान का तेल:** 2004 में Cairn India द्वारा बाड़मेर बेसिन (मंगला क्षेत्र) में खोजा गया; HRRL राजस्थान के अपने कच्चे तेल को प्रोसेस करने के लिए।

Geography / भूगोल

- **Balotra/Barmer district:** Western Rajasthan; Thar Desert region; oil-bearing geological formations; near Pakistan border; strategically located.
- **बालोतरा/बाड़मेर जिला:** पश्चिमी राजस्थान; थार मरुस्थल; तेल-युक्त भूगर्भीय संरचनाएं; पाकिस्तान सीमा के पास।
- **India's refinery geography:** Refineries concentrated in coastal states (Gujarat, Maharashtra, Tamil Nadu) and eastern India (Assam, West Bengal); HRRL diversifies inland.
- **भारत का रिफाइनरी भूगोल:** तटीय राज्यों और पूर्वी भारत में; HRRL अंतर्देशीय विविधता।
- **Rajasthan's energy significance:** State has oil (Barmer), solar energy (highest solar potential in India), wind energy — a key energy state.
- **राजस्थान का ऊर्जा महत्व:** तेल, सर्वाधिक सौर ऊर्जा क्षमता. पवन ऊर्जा।

Economy / अर्थव्यवस्था

- **India's refining capacity:** Currently ~254 MMTPA across 23 refineries (2024); India is 3rd largest refiner globally; Government aims to reach 310+ MMTPA by 2030.
- **भारत की परिष्करण क्षमता:** ~254 MMTPA 23 रिफाइनरियों में; वैश्विक स्तर पर 3वाँ सबसे बड़ा परिष्क; 2030 तक 310+ MMTPA का लक्ष्य।
- **HPCL (Hindustan Petroleum Corporation Limited):**
 - A Navratna/Maharatna PSU under MoPNG
 - Operates refineries at Mumbai and Visakhapatnam
 - Fuel retail network, LPG distribution
 - HPCL: MoPNG के तहत; मुंबई और विशाखापट्टनम रिफाइनरियाँ
- **Petrochemical significance:** HRRL's 2.4 MMTPA petrochemical capacity addresses India's import dependence on polymers, plastics, chemicals.
- **पेट्रोकेमिकल महत्व:** HRRL पॉलिमर, प्लास्टिक, रसायनों पर आयात निर्भरता को संबोधित।
- **Economic impact on Rajasthan:** HRRL expected to generate significant direct and indirect employment; boost state's industrial development; reduce crude oil transportation costs.
- **राजस्थान पर आर्थिक प्रभाव:** रोजगार; औद्योगिक विकास; कच्चे तेल परिवहन लागत में कमी।

- **HPCL:** Hindustan Petroleum Corporation Limited; Maharatna PSU; CMD headquarters in Mumbai; 2 refineries (Mumbai: 7.5 MMTPA, Vizag: 8.3 MMTPA); merged with ONGC in 2017.
- **HPCL:** महारत्न PSU; मुंबई HQ; 2 रिफाइनरियाँ (मुंबई, विजाग)।
- **Major Indian Refineries:**
 - Reliance, Jamnagar: 68.2 MMTPA — world's largest single-location refinery
 - IOC, Koyali (Vadodara): 18 MMTPA
 - BPCL, Mumbai: 12 MMTPA
 - IOC, Panipat: 20 MMTPA
 - HRRL, Balotra: 9 MMTPA (new)
- **Indian Oil Companies (Navratna/Maharatna PSUs):**
 - ONGC (exploration/production) — Maharatna
 - IOC (refineries, retail) — Maharatna
 - BPCL (refineries, retail) — Maharatna
 - HPCL (refineries, retail) — Maharatna
 - GAIL (gas pipelines) — Navratna
 - Oil India (exploration) — Navratna
- **Rajasthan's oil fields:** Mangala, Bhagyam, Aishwarya (MBA fields) — operated by Vedanta (formerly Cairn India); India's largest onshore oil discovery; connects to Salaya pipeline.

F1. Past Background / भूतकाल

- **2004:** Cairn India discovers massive oil in Barmer, Rajasthan — India's largest onshore discovery (~1 billion barrels).
- **2004:** बाड़मेर में Cairn India की खोज — भारत की सबसे बड़ी स्थल खोज (~100 करोड़ बैरल)।
- **2013:** HRRL project conceived — to process Rajasthan's crude locally; avoid long-distance transport costs.
- **2013:** HRRL परियोजना की परिकल्पना।
- **2018:** Foundation stone laid; construction began.
- **2018:** आधारशिला रखी; निर्माण शुरू।
- **Multiple delays:** Project delayed by land acquisition, COVID-19, funding challenges, cost escalation (initial estimate ~₹43,000 crore → final ₹79,459 crore).
- **कई देरी:** भूमि अधिग्रहण, COVID, फंडिंग चुनौतियाँ, लागत वृद्धि (₹43,000 करोड़ → ₹79,459 करोड़)।

F2. Present Situation / वर्तमान स्थिति

- Fire in CDU one day before inauguration; fire controlled; no casualties; inauguration postponed; investigation ordered; political controversy.
- CDU में आग उद्घाटन से एक दिन पहले; आग नियंत्रित; कोई हताहत नहीं; उद्घाटन स्थगित।

- **India's Major Refineries (Static GK):**

Refinery	Operator	Location	Capacity (MMTPA)
Jamnagar	Reliance	Gujarat	68.2 (world's largest single location)
Panipat	IOC	Haryana	20
Koyali (Vadodara)	IOC	Gujarat	18
Mathura	IOC	UP	8
Bongaigaon	IOC	Assam	2.35
Mumbai	BPCL	Maharashtra	12
Kochi	BPCL	Kerala	15.5
Mumbai	HPCL	Maharashtra	7.5
Vizag	HPCL	Andhra Pradesh	8.3
Balotra (HRRL)	HPCL+GoR	Rajasthan	9 (new)

#	Exam	Year	Question	Options	✔ Answer
1	UPSC CSE Prelims	2022	Which of the following is the world's largest single-location oil refinery?	(a) Ras Tanura (Saudi Arabia) (b) Reliance, Jamnagar (India) (c) Abadan (Iran) (d) Baytown (USA)	(b) Reliance, Jamnagar — 68.2 MMTPA capacity
2	UPSC CSE Prelims	2021	HPCL (Hindustan Petroleum Corporation Limited) is classified as which category of PSU?	(a) Miniratna (b) Navratna (c) Maharatna (d) Central PSU without Ratna status	(c) Maharatna
3	UPSC CSE Prelims	2023	The Mangala oil field, India's largest onshore oil discovery, is located in which state?	(a) Gujarat (b) Assam (c) Rajasthan (d) Andhra Pradesh	(c) Rajasthan — Barmer district; operated by Vedanta
4	UPSC CSE Prelims	2020	The Petroleum and Natural Gas Regulatory Board (PNGRB) was constituted under which Act?	(a) Petroleum Act, 1934 (b) PNGRB Act, 2006 (c) Mines Act, 1952 (d) OIL Act, 1948	(b) PNGRB Act, 2006

5	SSC CGL	2024	Which of the following correctly describes a "greenfield" project?	(a) Project for environmental protection / पर्यावरण संरक्षण परियोजना (b) Expansion of existing facility / मौजूदा सुविधा का विस्तार (c) A brand new facility built on previously undeveloped land ✓ / पहले अविकसित भूमि पर बनी नई सुविधा (d) Solar energy project on agricultural land	(c) New facility on undeveloped land
6	UPSC CSE Prelims	2019	GAIL India is classified as which category of PSU?	(a) Maharatna (b) Navratna (c) Miniratna I (d) Miniratna II	(b) Navratna
7	UPSC CSE Mains GS-3	2021	"India's petroleum refining capacity is insufficient for its growing demand. Discuss the challenges and opportunities in expanding India's refining capacity."	<i>(Mains descriptive)</i>	Key: 254 MMTPA capacity; HRRL greenfield; IOC/BPCL brownfield expansions; West Asia war impact; petrochemical integration; BS VI compliance; coastal vs inland distribution

8	UPSC CSE Prelims	2022	Under the Factories Act, 1948, which of the following is classified as a "hazardous process"?	(a) Cotton textile manufacturing (b) Wood processing (c) Petroleum refining (d) Leather tanning	(c) Petroleum refining — Schedule to Factories Act lists hazardous processes
9	UPSC CSE Prelims	2023	The Oil Industry Safety Directorate (OISD) functions under which Ministry?	(a) Environment (b) Petroleum and Natural Gas (c) Home Affairs (d) Science and Technology	(b) Ministry of Petroleum and Natural Gas
10	IBPS PO	2025	The HPCL Rajasthan Refinery Limited (HRRL) is located in which district of Rajasthan?	(a) Barmer (b) Balotra (c) Bikaner (d) Jaisalmer	(b) Balotra — previously part of Barmer; reorganised into separate Balotra district

Consider the following statements about the HPCL Rajasthan Refinery Limited (HRRL): HPCL राजस्थान रिफाइनरी लिमिटेड (HRRL) के बारे में निम्नलिखित कथनों पर विचार करें:

1. HRRL is a greenfield refinery-cum-petrochemical complex located in Balotra district of Rajasthan with an overall capacity of 9 MMTPA and petrochemical production capacity of 2.4 MMTPA. HRRL राजस्थान के बालोतरा जिले में स्थित एक ग्रीनफील्ड रिफाइनरी-सह-पेट्रोकेमिकल कॉम्प्लेक्स है जिसकी कुल क्षमता 9 MMTPA और पेट्रोकेमिकल उत्पादन क्षमता 2.4 MMTPA है।
2. HRRL is a joint venture where HPCL holds a 26% equity stake while the Government of Rajasthan holds the majority stake. HRRL एक संयुक्त उद्यम है जहाँ HPCL के पास 26% इक्विटी हिस्सेदारी है जबकि राजस्थान सरकार के पास बहुमत हिस्सेदारी है।
3. The crude distillation unit (CDU) in a refinery acts as a sorting station that distils raw crude into varied fractions before they can be sent to varied processing units. रिफाइनरी में कच्चे तेल आसवन इकाई (CDU) एक सॉर्टिंग स्टेशन के रूप में कार्य करती है जो कच्चे क्रूड को विभिन्न प्रसंस्करण इकाइयों में भेजने से पहले विभिन्न अंशों में आसवित करती है।
4. The fire at HRRL's crude distillation unit resulted in significant casualties and led to the complete shutdown of all refinery units. HRRL की CDU में आग से महत्वपूर्ण हताहत हुए और सभी रिफाइनरी इकाइयाँ पूरी तरह बंद हो गईं।

Which of the statements given above are correct?

IN BRIEF



Railways to operate 908 special trains during summer

The Railways has said that it will operate 908 special trains during the summer to address the anticipated rise in passenger demand from April 15 to July 15 due to vacations, festivals, and peak travel months. These trains will operate 19,262 trips to cater to the increased travel demand. Out of these, 609 trains have already been notified, accounting for 11,254 trips, ensuring that a substantial portion of the planned services is already available for passenger booking and travel planning well in advance. The Central Railway with 3,082 trips has emerged as the top zone with maximum summer special train trips.

SC declines to review verdict denying bail to Umar Khalid

The Supreme Court on Monday rejected a plea filed by former JNU student leader Umar Khalid to review its January 3 decision refusing to grant him bail in the Delhi riots 'larger conspiracy' case. A Bench of Justices Arun Kumar and N.V. Anand, did not find "any good ground to review the judgment dated January 3, 2020". The review petition was heard in chambers by the two judges on April 16. The order was published on Monday. The January 3 judgment had concluded that the constitutional guarantees of personal liberty and life were not "absolute" or "unregulated", but subject to restrictions on bail under special statutes like the UAPA.

Pawan Khera moves Gauhati HC seeking anticipatory bail

Congress leader Pawan Khera approached the Gauhati High Court on Monday, seeking anticipatory bail in connection with a criminal case registered against him by the Assam police's crime branch in Guwahati. The case is based on an FIR lodged by Chief Minister Himanta Biswa Sarma's wife, Binoli Bhuyan Sarma, after Mr. Khera claimed that she possessed passports of these countries, owned luxury properties in Dubai, and had significant investments in Wyoming, the United States. The court listed the Congress leader's plea for hearing on Tuesday. Mr. Khera made the claim at press conferences in New Delhi and Guwahati on April 8.

26 candidates bag perfect 100 NTA score in JEE-Main test

Twenty-six candidates have bagged a perfect 100 NTA score in the engineering entrance exam JEE-Main, the National Testing Agency (NTA) announced on Monday. Over 14 lakh candidates appeared in the first edition of the exam in January and more than 10 lakh candidates in the second edition in April. Over eight lakh unique candidates appeared in both sessions. Among the candidates who secured an NTA score of 100, five each are from Andhra Pradesh and Telangana followed by four from Rajasthan, three from Delhi, two each from Maharashtra and Karnataka, and one candidate each from Haryana, Tamil Nadu, Odisha and Gujarat. All are males.

India's forests could nearly double carbon storage by 2100, study finds

The findings, published in *Environmental Research: Climate*, involved researchers from Indian institutes; biggest increases in vegetation carbon are projected in desert and semi-arid zones across Rajasthan, Gujarat and Madhya Pradesh, study says

Jacob Knauth
NEW DELHI

India's forests could store nearly twice as much carbon by the end of this century as they do now if current greenhouse gas emissions trends continue, according to a new modelling study published this week in the journal *Environmental Research: Climate*.

The findings, involving researchers from multiple Indian institutes, present a granular forecast of how climate change will reshape the country's forest carbon stocks. Significantly, they diverge in important ways from official estimates compiled by the Forest Survey of India (FSI) — the official source of tree and forest cover data in India.

For this study, the authors used modelling to peer into the future and found that vegetation carbon inventories rise by 38% under a low-emissions future, 62%



Wake-up call: Climate change is threatenly sweetening every sector, including our forests, say scientists. SPECIAL ARRANGEMENT

under a medium-emissions pathway, and as much as 97% under a high-emissions, fossil-fuel-intensive scenario by 2100. Still, about 2030, all of the scenarios project roughly the same quantities of vegetation after that, they diverge sharply — the steeply increasing carbon inventories after 2050.

The projected increases are driven primarily by two interacting forces: ris-

ing precipitation and elevated atmospheric CO₂. Higher rainfall, projected across much of India under all emissions scenarios, translates to more moisture available for trees to grow. Simultaneously, more available carbon dioxide means enhancing photosynthesis and water-use efficiency. Rainfall effects appear with a lag of roughly two years after low and medium emis-

sions, extending to about four years under the high-emissions scenario. To account for the fact that forests do not respond instantly to a single wet year, and that woody biomass accumulation slowly over time.

"Climate change is not just about rising temperatures — it is silently rewire-

ing every sector, including our forests," said lead author Fadhila Fidha. "Even where gains appear, they may mask deeper losses, raising concerns about the stability of today's diverse forests and the risk of releasing large stores of carbon. Human pressures, land-use change, and extreme events such as wildfires, droughts, and heatwaves are intensifying these risks. If we undermine our forests today, we risk amplifying emissions tomorrow."

The largest relative increase occurred in India's established forest heartlands but in its driest

regions. Desert and semi-arid zones across Rajasthan, Gujarat, western Madhya Pradesh, and adjoining dry interiors are expected to see vegetation carbon rise by more than 60% compared to historical levels under high emissions. The Trans-Himalayan, the Gangetic forest belt, and the Deccan Peninsula follow. The Western Ghats and the Himalayas — India's most biodiverse and ecologically significant forest zones — are projected to see comparatively smaller relative increases, constrained by ecological saturation and low so far revealed that RCom Ltd. entered into circular transactions through shell entities controlled by the company's officials and also got dis-

counted LCA (Letters of Credit) opened for "bogus services" related to transactions with its group entities, which got shelved, causing huge loss to the banks," the agency said.

The increase in vegetation doesn't mean that climate change is acting as a net good, the researchers warned, as the models do not account for disruptive forces such as deforestation, land conversion, fires, and pest outbreaks intensified by warming.

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CBI arrests 2 executives of RCom in bank fraud case

The Hindu Bureau
NEW DELHI

The CBI has arrested two senior executives of Reserve Communications Limited (RCom) in connection with a case alleging wrongful loss of about ₹2,928.08 crore to the SBI, the CBI said on Monday.

The accused, V. Viswanath and Anil Kalya, are linked to a case registered by the CBI in August 2025 against RCom, its former director Anil Anand and others, following a complaint lodged by the SBI. The complaint alleged a total wrongful loss of ₹2,928.08 crore to 37 public sector banks/financial institutions. "Investigation has so far revealed that RCom Ltd. entered into circular transactions through shell entities controlled by the company's officials and also got dis-

counted LCA (Letters of Credit) opened for "bogus services" related to transactions with its group entities, which got shelved, causing huge loss to the banks," the agency said.

Allahabad HC judge recuses from Rahul Gandhi case

Jharkhand
NEW DELHI

Criticising the petitioner's social media posts casting aspersions against his court, the Allahabad High Court judge, who was hearing the plea filed over the alleged breach of a term sheet of Rahul Gandhi, recused himself from the case on Monday.

The development came from the Bench of Justices Subhadh Vidwathi of the Lucknow Bench of the Allahabad HC, who was hearing a plea filed by a Karnataka-based BJP leader, Vignesh Shitler. The court had directed the filing of an FIR against Mr. Gandhi on April 17. In a subsequent written order, the Bench noted that the Congress leader might be entitled to a hearing before any final decision is taken.

During the hearing on Monday, the court observed that the petitioner had publicly suggested "foul play" on part of the court and it did not deem it appropriate to hear the matter any further.

Doval's Riyadh visit on PM's instructions, part of govt. outreach to Gulf, says MEA

Jharkhand
NEW DELHI

National Security Adviser Ajit Doval's surprise one-day visit to Riyadh was part of an outreach by the government amid a tense phase in the West Asian conflict, and took place according to the Ministry of External Affairs, on Prime Minister Narendra Modi's instructions.

The NSEA visit was announced late on Sunday night by the MEA, at the end of his meetings with a number of senior Ministers. In Riyadh, Mr. Doval held talks with his counterpart, National Security Adviser Mutaib Al-Abdin. He also met Foreign Minister Faisal bin Farhan Al-Saud, Energy Minister Abdulata bin Salman Al-Saud, both princes in the Saudi royal family.

"On the directions of the Prime Minister, our outreach to countries in the Gulf continues," said MEA spokesperson Bandita Jainwal, describing the visit at



National Security Adviser Ajit Doval with Saudi Arabia's Foreign Minister Prince Faisal bin Farhan in Riyadh. SEE

a multi-ministerial briefing on Monday. "Mr. Doval's meetings were helpful to exchange views and review bilateral ties, and also exchange views on the regional situation and other matters of mutual interest," he added.

Mr. Doval's travel to the Kingdom of Saudi Arabia came a week after External Affairs Minister S. Jaishankar's two-day visit to the United Arab Emirates (April 14-15), and Energy Minister Hardip Puri's earlier visit to Qatar (April 9-10), and is understood to have been part of the go-

vernment's desire to shore up ties with India's major oil and gas suppliers amidst a possible energy crisis, as well as emphasise a more balanced approach towards the region during this time of crisis.

In a statement, the Saudi Ministry of Foreign Affairs said that the talks between the Saudi Foreign Minister and Mr. Doval had reviewed areas of India-Saudi cooperation, "alongside a discussion of the latest developments in the regional situation and an exchange of viewpoints regarding it".

No interim relief for Nida Khan, next hearing on April 27

Vinaya Deshpande Pandit
MUMBAI

A local court in Nashik did not grant interim relief to Agri Doval's surprise one-day visit to Riyadh was part of an outreach by the government amid a tense phase in the West Asian conflict, and took place according to the Ministry of External Affairs, on Prime Minister Narendra Modi's instructions.

Another court in Nashik sent Ms. Khan's co-accused Nisha Menon and Shaad Sheikh to 14-day judicial custody after their police custody ended.

In-camera hearing: The Nashik court held Ms. Khan's hearing in-camera. She had earlier been held in-camera to protect the identity of the complainant. Baba Sajeev representing Ms. Khan, told The Hindu's reporter.

The lawyers representing Ms. Khan told the court that she is pregnant, and since she does not have

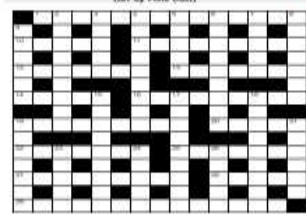
any criminal history, there is no need for her custodial interrogation. They said that Ms. Khan has been falsely implicated and that there was a delay of two to three years in registering the FIR.

They argued that though sections of Prevention of Money Laundering Act have been invoked in the FIR, it does not imply that an arrest is imminent, adding that the sections do not apply to her.

Being targeted: Ms. Khan's lawyers said that she was being targeted and was under stress due to the loss of her job. "She did not hurt the complainant's sentiments on purpose," the lawyers said.

But the government pleader submitted that the offence against her is serious and alleged that Ms. Khan had actively participated in the crime. He said the offence is serious and related to atrocities against a woman and sought time from the court to file the government's reply.

THE CROSSWORD 14773



Across

- Old sake shared several times in a ordinary rhyme (4-6-3)
- Prudent and beloved ruler of Preloyn Cycling (5)
- Wanted for a soldier's dog (6, 6)
- It's absurd, what is stealing night's tape (10)
- Out fly! (single letter) (7)
- An adult insect's study of mind (8)

- Food will be hot and sticky (3)
- Cryptically could not something most murky? (3)
- Brand mounted without hope in the end (5)
- Yes. Son coasted to smuggle substance (7)
- Love poem with English guide (7)
- Marine (colony resistant) unidentifiable at first with return of a large spider (7)
- Conducting extremely vapoury gas cocktail (3)
- It lives see and dangerous stuff! (8,13)
- Down
- Old boy Harry got hit and spooned (6)
- From the beginning Ring never appreciated Chief Khatrap's talent (5)
- Boyd's drive we fear is in the grips of an implant (3)
- Outcast weasel rightly ignored characters in a number system (5)
- Sprinter expresses surprise and fingers in lounge (5)
- In recess resisted beerage (5)
- Heard about Indian Classic's epic journey (7)
- Naughty smile describing basically unpalatable food (8)
- Fish, Quebec, head drive essentially in reverse (5)
- Concocted party game (4)
- Carnouflaged terrapins come to light (8)
- Caught a shark, a coming feast (7)
- Oversee medical practitioner on line (6)
- Supporter (age appealing) in every other shoot (5)
- Prepare one line supporting establishment at first (6)
- To some extent a lergenium vice author's concluding words (5)

SUDOKU

	2	3		5	9		4	
	1			8			5	6
7	9							
		2		5				
4			3		9		1	8
3		1		8	7		6	

Solution to previous puzzle

1	2	3	4	5	6	7	8	9
2	3	4	5	6	7	8	9	1
3	4	5	6	7	8	9	1	2
4	5	6	7	8	9	1	2	3
5	6	7	8	9	1	2	3	4
6	7	8	9	1	2	3	4	5
7	8	9	1	2	3	4	5	6
8	9	1	2	3	4	5	6	7
9	1	2	3	4	5	6	7	8

Solution to yesterday's sudoku

1	2	3	4	5	6	7	8	9
2	3	4	5	6	7	8	9	1
3	4	5	6	7	8	9	1	2
4	5	6	7	8	9	1	2	3
5	6	7	8	9	1	2	3	4
6	7	8	9	1	2	3	4	5
7	8	9	1	2	3	4	5	6
8	9	1	2	3	4	5	6	7
9	1	2	3	4	5	6	7	8

FAITH

Adi Sankara: guiding light

Adi Sankara, rated as one of the top philosophers, who propounded the Advaita philosophy (paramatma and jivatma are one and the material world is nothing but maya or illusion). It is unparalleled and continues to remain relevant. Devotees may attribute various forms to Paramatma, but He is One. An ordinary devotee can gain true insight of the above philosophy only through jnana, said H. Damodara Deshpande. This is itself in complete only when the devotee gets the blessings of a guru.

One may think that one can gain jnana from perusing books or through experiences, however, unless one gets the grace of a guru, such jnana is incomplete. One can gain the guru's grace in any of the three ways through reach, through guru's eyes falling on one and remaining for a few minutes on one, and through the mind of a guru focusing on a devotee's mind from afar. A bird always sits on its egg (touch), nourishing it. When the mother fish turns and looks at its new hatchlings, it is enough to nurture their hunger. When Dhruv set out to the forest for tapas, in order to become the leader of the universe, he came across Narada, who gently placed his hand on the young lad's head. Dhruv joined him. As an eight-year old, Adi Sankara himself went in search of a guru on embracing anissa on receiving his mother's permission. He travelled to Onkadeshwar and received initiation from Govinda Bhagavatpada.

Devotees ask if one should seek a guru or acharya. A guru is one who dispels agnana while an acharya is one who shows the disciple the right path. Adi Sankara was both guru and acharya, and therefore unparalleled.

India's forests could nearly double carbon storage by 2100, study finds

The findings, published in *Environmental Research: Climate*, involved researchers from Indian institutes; biggest increases in vegetation carbon are projected in desert and semi-arid zones across Rajasthan, Gujarat and Madhya Pradesh, study says

Jacob Koshy
NEW DELHI

India's forests could store nearly twice as much carbon by the end of this century as they do now if current greenhouse gas emission trends continue, according to a new modelling study published this week in the journal *Environmental Research: Climate*.

The findings, involving researchers from multiple Indian institutes, present a granular forecast of how climate change will reshape the country's forest carbon stocks. Significantly, they diverge in important ways from official estimates compiled by the Forest Survey of India (FSI) – the official source of tree and forest cover data in India.

For this study, the authors used modelling to peer into the future and found that vegetation carbon biomass rises by 35% under a low-emissions future, 62%



Wake-up call: Climate change is silently rewriting every sector, including our forests, say scientists. SPECIAL ARRANGEMENT

under a medium-emissions pathway, and as much as 97% under a high-emissions, fossil-fuel-intensive scenario by 2100. Till about 2030, all of the scenarios project roughly the same quantities of vegetation after which they diverge sharply – the steepest acceleration occurring after 2050.

The projected increases are driven primarily by two interacting forces: ris-

ing precipitation and elevated atmospheric CO₂. Higher rainfall, projected across much of India under all emissions scenarios, translates to more moisture available for trees to grow. Simultaneously, more available carbon dioxide means enhancing photosynthesis and water-use efficiency. Rainfall effects appear with a lag of roughly two years under low and medium emis-

sions, extending to about four years under the high-emissions scenario to account for the fact that forests do not respond instantly to a single wet year, and that woody biomass accumulates slowly over time.

"Climate change is not just about rising temperatures – it is silently rewriting every sector, including our forests," said lead author Fathima Fitha. "Even where gains appear, they may mask deeper stresses, raising concerns about the stability of today's dense forests and the risk of releasing large stores of carbon. Human pressures, land-use change, and extreme events such as wildfires, droughts, and heatwaves are intensifying these risks. If we undermine our forests today, we risk amplifying emissions tomorrow."

The largest relative increases are projected not in India's established forest heartlands but in its driest

margins. Desert and semi-arid zones across Rajasthan, Gujarat, western Madhya Pradesh, and adjoining dry interiors are expected to see vegetation carbon rise by more than 60% compared to historical levels under high emissions. The Trans-Himalayas, the Gangetic forest belt, and the Deccan Peninsula follow. The Western Ghats and the Himalayas – India's most biodiverse and ecologically significant forest zones – are projected to see comparatively smaller relative increases, constrained by ecological saturation and specific climatic pressures those regions face, the study shows.

The increase in vegetation doesn't mean that climate change is acting as a net good, the researchers warned, as the models do not capture disruptive forces such as deforestation, land conversion, fire, and pest outbreaks intensified by warming.

- A new modelling study published in **Environmental Research: Climate** by researchers from multiple Indian institutes projects that India's **vegetation carbon biomass could rise by 35% (low emissions), 62% (medium emissions), or 97% (high emissions)** by 2100.
- **Environmental Research: Climate** में प्रकाशित एक नई मॉडलिंग अध्ययन — भारत के **वनस्पति कार्बन बायोमास में 35% (कम उत्सर्जन), 62% (मध्यम उत्सर्जन), या 97% (उच्च उत्सर्जन)** 2100 तक वृद्धि।
- **Biggest projected increases** in desert and semi-arid zones of **Rajasthan, Gujarat, and Madhya Pradesh** — not in India's established forest heartlands.
- **सबसे बड़ी अनुमानित वृद्धि** राजस्थान, गुजरात, और मध्य प्रदेश के मरुस्थल और अर्ध-शुष्क क्षेत्रों में — स्थापित वन हृदयस्थलों में नहीं।
- **Critical warning:** The increase in vegetation carbon does NOT mean climate change is a "net good" — models don't capture deforestation, land conversion, fire, and pest outbreaks intensified by warming.
- **महत्वपूर्ण चेतावनी:** वनस्पति कार्बन में वृद्धि का मतलब जलवायु परिवर्तन "शुद्ध अच्छा" नहीं है — मॉडल वनों की कटाई, भूमि रूपांतरण, आग, कीट प्रकोप को नहीं पकड़ते।
- Study diverges significantly from **FSI (Forest Survey of India)** estimates — official source for forest/tree cover data.
- अध्ययन **FSI (भारतीय वन सर्वेक्षण)** के आधिकारिक अनुमानों से महत्वपूर्ण रूप से अलग।
- Lead author **Fathima Fitha:** "Climate change is not just about rising temperatures — it is silently rewriting every sector, including our forests."
- प्रमुख लेखक **फातिमा फिथा:** "जलवायु परिवर्तन केवल बढ़ते तापमान के बारे में नहीं है — यह हमारे वनों सहित हर क्षेत्र को चुपचाप फिर से लिख रहा है।"

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- प्रमुख लेखक **फातिमा फिथा:** "जलवायु परिवर्तन केवल बढ़ते तापमान के बारे में नहीं है — यह हमारे वनों सहित हर क्षेत्र को चुपचाप फिर से लिख रहा है।"

- Climate change is expected to bring more rainfall to most of India. More rain + more CO₂ in the atmosphere = trees grow faster and store more carbon. This sounds like good news, but it's actually a complex and dangerous situation.
- जलवायु परिवर्तन से भारत के अधिकांश हिस्सों में अधिक वर्षा की उम्मीद है। अधिक वर्षा + वायुमंडल में अधिक CO₂ = पेड़ तेजी से बढ़ते हैं और अधिक कार्बन संग्रहीत करते हैं। यह अच्छी खबर लगती है, लेकिन वास्तव में यह एक जटिल और खतरनाक स्थिति है।
- The irony: The biggest "gains" are in Rajasthan/Gujarat (deserts) where even small rainfall increases can cause significant vegetation growth. But the most ecologically rich forests (Western Ghats, Himalayas) will see smaller relative gains because they're already near their ecological limits.
- विडंबना: सबसे बड़े "लाभ" राजस्थान/गुजरात (मरुस्थल) में हैं जहाँ छोटी वर्षा वृद्धि भी महत्वपूर्ण वनस्पति विकास का कारण बन सकती है। लेकिन सबसे पारिस्थितिक रूप से समृद्ध वन छोटे सापेक्ष लाभ देखेंगे।
- The danger: These projections don't account for deforestation, land conversion, wildfires (which are increasing), and pest outbreaks. If India's existing forests are damaged/destroyed, the carbon stored in them is released — making climate change worse, not better.
- खतरा: ये अनुमान वनों की कटाई, भूमि रूपांतरण, जंगल की आग (जो बढ़ रही है), और कीट प्रकोप को नहीं मानते। यदि मौजूदा वन नष्ट होते हैं, तो संग्रहीत कार्बन मुक्त हो जाता है।

D1. Key Findings / मुख्य निष्कर्ष

- **Vegetation carbon biomass projections by 2100:**
 - **Low-emissions scenario:** +35%
 - **Medium-emissions scenario:** +62%
 - **High-emissions (fossil-fuel intensive) scenario:** +97% (~doubling)
- Till about **2030**: All scenarios project roughly same quantities of vegetation
- After **2030**: Scenarios diverge sharply
- **Steepest acceleration:** After 2050
- **वनस्पति कार्बन बायोमास 2100 तक:** +35% (कम), +62% (मध्यम), +97% (उच्च); 2030 तक समान; 2030 के बाद तीव्र विचलन; 2050 के बाद सबसे तेज वृद्धि।

D2. Two Driving Forces / दो चालक शक्तियाँ

1. **Rising precipitation:** Higher rainfall projected across India under all emissions scenarios → more moisture → trees grow better
 2. **Elevated atmospheric CO₂:** More CO₂ → enhanced photosynthesis and water-use efficiency
- **Rainfall effects lag:** ~2 years under low/medium emissions; ~4 years under high emissions (forests don't respond instantly to a single wet year; woody biomass accumulates slowly)
 - **वर्षा प्रभाव अंतराल:** कम/मध्यम उत्सर्जन में ~2 वर्ष; उच्च में ~4 वर्ष (वन तुरंत प्रतिक्रिया नहीं करते)

D3. Regional Patterns / क्षेत्रीय पैटर्न

- **Largest relative increases (>60% under high emissions): Desert and semi-arid zones** — Rajasthan, Gujarat, western Madhya Pradesh, adjoining dry interiors
- **Medium relative increases:** Trans-Himalayas, Gangetic forest belt, Deccan Peninsula
- **Smaller relative increases: Western Ghats and Himalayas** — ecologically saturated; already near climatic limits; face specific pressures
- **सबसे बड़ी वृद्धि:** मरुस्थल/अर्ध-शुष्क क्षेत्र (राजस्थान, गुजरात, पश्चिमी MP) | **सबसे कम:** पश्चिमी घाट और हिमालय — पारिस्थितिक संतृप्ति

D4. Critical Warnings / महत्वपूर्ण चेतावनियाँ

- **"Gains" may mask deeper stresses** — raising concerns about stability of dense forests and risk of releasing large stores of carbon
- **Human pressures + land-use change + extreme events** (wildfires, droughts, heatwaves) are intensifying risks
- **Models don't capture** deforestation, land conversion, fire, pest outbreaks intensified by warming
- **Paradox:** Undermining forests today → risk amplifying emissions tomorrow
- **"स्पष्ट लाभ गहरे तनाव को छुपा सकते हैं"** | मानवीय दबाव + भूमि उपयोग + चरम घटनाएं जोखिम बढ़ा रही | मॉडल वनों की कटाई, आग नहीं पकड़ते

Geography / भूगोल

- **India's forest zones:**
 - **Tropical moist deciduous forests:** Western Ghats, eastern India — highest biodiversity
 - **Tropical dry deciduous:** Most of peninsular India
 - **Tropical thorn forests:** Rajasthan, Gujarat — will benefit most from climate-driven rainfall
 - **Tropical evergreen:** Northeast, parts of Western Ghats
 - **Himalayan forests:** Temperate, alpine — ecologically sensitive
 - **भारत के वन क्षेत्र:** उष्णकटिबंधीय नम पर्णपाती, शुष्क पर्णपाती, कंटीले, सदाबहार, हिमालयी
- **Western Ghats:** Biodiversity hotspot; UNESCO World Heritage; ecologically saturated — small relative gains expected despite high ecological value
- **Himalayas:** Glacier retreat, treeline shift upward (treeline moving to higher altitudes due to warming)
- **पश्चिमी घाट:** जैव विविधता हॉटस्पॉट; UNESCO विश्व धरोहर | **हिमालय:** हिमनद पिघलन, ट्रीलाइन बदलाव
- **Rajasthan, Gujarat desert zones:** Lowest forest cover currently → largest relative gains when rainfall increases (even small absolute amounts of rain cause big relative change)
- **राजस्थान, गुजरात मरुस्थल:** वर्तमान में सबसे कम वन आवरण → वर्षा बढ़ने पर सबसे बड़ा सापेक्ष लाभ

Polity / राजव्यवस्था

- **Forest Conservation Act, 1980 (now Forest (Conservation) Amendment Act, 2023):** Prior approval of Central Government required for diversion of forest land to non-forest purposes; 2023 amendments controversial — excluded some forest categories from protection.
- **वन संरक्षण अधिनियम, 1980 (2023 संशोधन):** वन भूमि के गैर-वन उद्देश्यों के लिए केंद्र की पूर्व अनुमति; 2023 संशोधन विवादास्पद।
- **Indian Forest Act, 1927:** Classification of forests (reserved, protected, village forests); provisions for forest management.
- **भारतीय वन अधिनियम, 1927:** वन वर्गीकरण (आरक्षित, संरक्षित, ग्राम वन)।
- **Biological Diversity Act, 2002:** Protection of biodiversity; access and benefit sharing; National Biodiversity Authority (NBA); amended 2023.
- **जैविक विविधता अधिनियम, 2002:** NBA; 2023 में संशोधित।
- **CAMPA (Compensatory Afforestation Fund Management and Planning Authority):** Funds collected when forest land diverted → used for compensatory afforestation; Ad Hoc CAMPA → National CAMPA (2016).
- **CAMPA:** वन भूमि डायवर्जन पर प्रतिपूरक वनीकरण निधि।
- **Joint Forest Management (JFM):** Community participation in forest management — began 1988 with Arabari experiment, West Bengal; currently covers 1/3+ of India's forests.
- **JFM:** वन प्रबंधन में समुदाय भागीदारी — 1988 अरबरी, पश्चिम बंगाल।
- **India's NDC (Nationally Determined Contribution):** Under Paris Agreement, India committed to **create/enhance additional carbon sink of 2.5-3 billion tonnes CO₂ equivalent** through forests and trees by 2030; 33% of geographic area under forest and tree cover.
- **भारत का NDC:** 2030 तक वनों के माध्यम से **2.5-3 बिलियन टन CO₂ समतुल्य** अतिरिक्त कार्बन सिंक; 33% भूगोल वन/वृक्ष आवरण।

- **FSI (Forest Survey of India):**
 - Under Ministry of Environment, Forest and Climate Change (MoEFCC)
 - HQ: Dehradun, Uttarakhand
 - Publishes **India State of Forest Report (ISFR)** every two years
 - India's forest + tree cover: ~24% of geographic area (latest ISFR data; note: India's NDC target = 33%)
 - **FSI:** MoEFCC के तहत; HQ देहरादून; **ISFR** द्विवार्षिक; वन + वृक्ष आवरण ~24%।
- **India's Biodiversity Hotspots:**
 1. **Western Ghats** — shared with Sri Lanka
 2. **Eastern Himalayas/Indo-Burma** — shared with Southeast Asia
 3. (Sundaland, Indo-Burma include NE India)
 - **भारत के जैव विविधता हॉटस्पॉट:** पश्चिमी घाट, पूर्वी हिमालय।
- **Key Indian Forests:**
 - Sundarbans (West Bengal): Largest mangrove in the world; UNESCO WHS
 - Silent Valley (Kerala): Last undisturbed tropical rainforest
 - Namdapha (Arunachal Pradesh): Only sanctuary with 4 big cats
 - Simlipal (Odisha): Biosphere reserve
 - **सुंदरबन** (विश्व का सबसे बड़ा मैंग्रोव); **साइलेंट वैली** (केरल); **नामदफा** (4 बड़ी बिल्लियाँ)
- **National Green Tribunal (NGT):** Established 2010; deals with environmental cases; has handled forest diversion cases.
- **NGT:** 2010 में स्थापित; पर्यावरण मामले।

#	Exam	Year	Question	Options	✔ Answer
1	UPSC CSE Prelims	2021	The Forest Survey of India (FSI) publishes the India State of Forest Report (ISFR) with what frequency?	(a) Annually (b) Biennially (every 2 years) (c) Every 5 years (d) Decennially	(b) Every 2 years (biennially)
2	UPSC CSE Prelims	2023	Which of the following is NOT a biodiversity hotspot in India?	(a) Western Ghats (b) Eastern Himalayas (c) Thar Desert (d) Indo-Burma region	(c) Thar Desert — not a hotspot; Western Ghats and Eastern Himalayas/Indo-Burma are
3	UPSC CSE Prelims	2022	The Chipko Movement (1973) was primarily associated with:	(a) Rights of fishermen (b) Protection of forests/trees in Uttarakhand (c) Anti-dam protests (d) Tribal land rights	(b) Protection of forests in Uttarakhand
4	UPSC CSE Prelims	2021	India's NDC (Nationally Determined Contribution) under the Paris Agreement includes creating an additional carbon sink through forests of:	(a) 1-1.5 billion tonnes CO ₂ equivalent (b) 2-2.5 billion tonnes CO ₂ equivalent (c) 2.5-3 billion tonnes CO₂ equivalent (d) 4-5 billion tonnes CO ₂ equivalent	(c) 2.5-3 billion tonnes CO₂ equivalent by 2030

5	UPSC CSE Prelims	2020	REDD+ is associated with which international environmental framework?	(a) CBD (Convention on Biological Diversity) (b) UNFCCC (UN Framework Convention on Climate Change) (c) CITES (d) Ramsar Convention	(b) UNFCCC
6	UPSC CSE Prelims	2023	The Forest Survey of India (FSI) functions under which Ministry?	(a) Agriculture (b) Science and Technology (c) Environment, Forest and Climate Change (d) Rural Development	(c) Ministry of Environment, Forest and Climate Change (MoEFCC)
7	UPSC CSE Mains GS-3	2022	"India's forests are both a repository of biodiversity and a critical carbon sink. Discuss the challenges in balancing conservation with development."	(Mains descriptive)	Key: NDC 2.5-3GT target; FCA 1980; 2023 amendments; CAMPA; tribal rights (FRA 2006); JFM; REDD+; climate change impacts; FSI data gaps
8	UPSC CSE Prelims	2019	The CAMPA (Compensatory Afforestation Fund Management and Planning Authority) was established under which Act?	(a) Forest Conservation Act 1980 (b) Wildlife Protection Act 1972 (c) Environment Protection Act 1986 (d) Compensatory Afforestation Fund Act, 2016	(d) CAF Act, 2016

8	UPSC CSE Prelims	2019	The CAMPA (Compensatory Afforestation Fund Management and Planning Authority) was established under which Act?	(a) Forest Conservation Act 1980 (b) Wildlife Protection Act 1972 (c) Environment Protection Act 1986 (d) Compensatory Afforestation Fund Act, 2016	(d) CAF Act, 2016
9	UPSC CSE Prelims	2022	The "Joint Forest Management (JFM)" in India began with an experiment in which state?	(a) Kerala (b) Maharashtra (c) Uttarakhand (d) West Bengal	(d) West Bengal — Arabari experiment, 1988
10	UPSC CSE Prelims	2024	Under India's updated NDC (2022), what percentage of geographic area does India aim to bring under forest and tree cover?	(a) 25% (b) 30% (c) 33% (d) 40%	(c) 33% of India's geographic area

IN BRIEF



Hyundai, TVS partner for commercialisation of E-RV

Hyundai Motor Company and TVS Motor Company on Monday said they have signed a joint development agreement to advance the development and commercialisation of electric drive vehicles... (The text continues with details of the partnership and the goal of commercialising the E-RV by 2025.)

Apple pauses data in antitrust case, CCI seeks final hearing

Apple has not submitted data sought by India's antitrust body after an investigation found the U.S. firm abused its dominant position in the phone app market... (The text discusses the ongoing antitrust case and the Commission's decision to seek a final hearing.)

Officials seize suspected counterfeit Mouniara pens

Indian drug regulators seized more than 200 suspected counterfeit pens of Eli Lilly's obesity and diabetes drug Mouniara... (The text reports on the seizure of counterfeit drugs and the company's response.)

FY26 pharma exports up 2% even as March saw dip

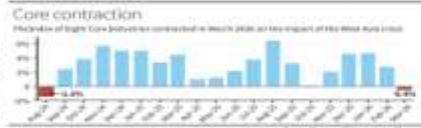
India's pharmaceutical exports rose more than 2% year-over-year to \$11.41 billion in FY26 despite a 2% dip in March... (The text provides data on pharmaceutical exports and discusses the impact of the March dip.)

Core sector activity contracts 0.4% in March on war impact

Government data show that four out of the eight core sectors of the economy contracted in March 2025, growth in the full year of 2025-26 was the lowest since the COVID-19 pandemic.

J.G.A. Sharm/Business News Desk

A study in India's eight core sectors revealed that the industrial sector contracted by 0.4% in March 2025, the first month after the war in West Asia broke out, according to data released by the government. This was the poorest performance for the sector in 18 months.



The data on the Index of Eight Core Industries released by the Ministry of Commerce and Industry on Monday also showed that growth in the index stood at 2.4% for the full year 2025-26, the lowest since the COVID-19 pandemic in 2020-21.

In March 2025, the data showed that four out of the eight sectors registered in the index contracted over their levels in March last year. While an advance loss weighed on activity in production, a shortage of raw materials, the war in West Asia curtailed the fer-

rrous output, which plunged by an average of 24.6% year-on-year in the month. Aditi Nigam, Chief economist at rating agency IFAA said, "The decline in steel and cement output led the year 2025-26 with a contraction of 0.1% as compared with a growth of 1.9% in 2024-25, which in turn was the lowest since 2023-24.

The electricity sector contracted 0.2% in March 2025 on a relatively high base of 1.9% growth in March 2024. Over the course of 2025-26, the sector grew 0.6%, down from 2.3% in 2024-25.

"Besides, the growth in steel and cement output of 6.4% in the government sector in March 2025 relative to February 2024, suggesting that infrastructure activity slowed in the month," Ms. Nigam added. "While an advance loss weighed on activity in production, a shortage of raw materials, the war in West Asia curtailed the fer-

rrous output, which plunged by an average of 24.6% year-on-year in the month. Aditi Nigam, Chief economist at rating agency IFAA said, "The decline in steel and cement output led the year 2025-26 with a contraction of 0.1% as compared with a growth of 1.9% in 2024-25, which in turn was the lowest since 2023-24.

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SEBI amends alternative investment fund rules

Praveen Prasad/Business News Desk

SEBI has amended the regulations governing the formation and operation of Alternative Investment Funds (AIFs) to align them with the Securities and Exchange Board of India (SEBI) Act, 1992.

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Draft rules for roll-out of Ethanol 85 fuel to be notified soon

Jasjit Chandra/Business News Desk

The government will "very soon" issue draft rules on the roll-out of ethanol 85 (E85) as a vehicle fuel, according to officials. The draft rules will specify the conditions for the roll-out of E85 fuel.

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There is a need to prioritise biofuel for aviation: IATA

Jasjit Chandra/Business News Desk

India's aviation sector has a long way to go to meet its net-zero emissions target by 2050, according to the International Air Transport Association (IATA). The association calls for a focus on sustainable aviation fuels (SAF).



Praveen Prasad

The association calls for a focus on sustainable aviation fuels (SAF). It highlights the need for governments and airlines to invest in SAF production and distribution to reduce carbon emissions from aviation.

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GIFT City grants first office permit

Praveen Prasad/Business News Desk

The Gujarat International Finance Tec-City (GIFT City) has issued the first office permit to a company, marking a significant milestone in the development of the financial hub. The permit allows the company to set up its office in GIFT City.

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SBI 'targets balance-sheet size of 25% of India's GDP by 2030'

Rishi Kumar/Business News Desk

India's biggest bank wants to grow its balance sheet to 25% of the country's GDP by 2030, according to officials. The State Bank of India (SBI) aims to achieve this target through various financial and operational strategies.

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Upgrading India-Korea trade pact for balanced partnership

The Hindu Business News Desk

The decision by India and Korea to upgrade their trade pact is a significant step towards a more balanced partnership. The new pact will address trade imbalances and enhance economic cooperation between the two countries.

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Draft rules for roll-out of Ethanol 85 fuel to be notified soon

Jagriti Chandra

NEW DELHI

The government will “very soon” issue draft rules on the roll-out of Ethanol 85 (E85) as vulnerabilities in oil exports exposed during the West Asia crisis sharpen the focus on alternative fuels, a senior government official said. While a final date is yet to be decided, the official said the roll-out is expected “in a couple of years”.

E85 is a fuel blend made of up to 85% ethanol and 15% petrol (gasoline).

“Draft regulations will be notified very soon. There is consensus within the government. There is also market consensus and preliminary testing too has been carried out,” the official said, speaking on condition of anonymity.

The E85 blend will be introduced as a separate fuel grade, distinct from E20, in which ethanol blending could go up to 27%, which is permissible under a notification issued in 2023, the official explained.

High levels of ethanol

blending offer several benefits, including “greater energy security for the country and a reduction in vehicular pollution,” the official said.

Such a high-ethanol fuel will require dedicated engine compatibility, as well as separate dispensing infrastructure at fuel pumps that will also dispense E20 petrol.

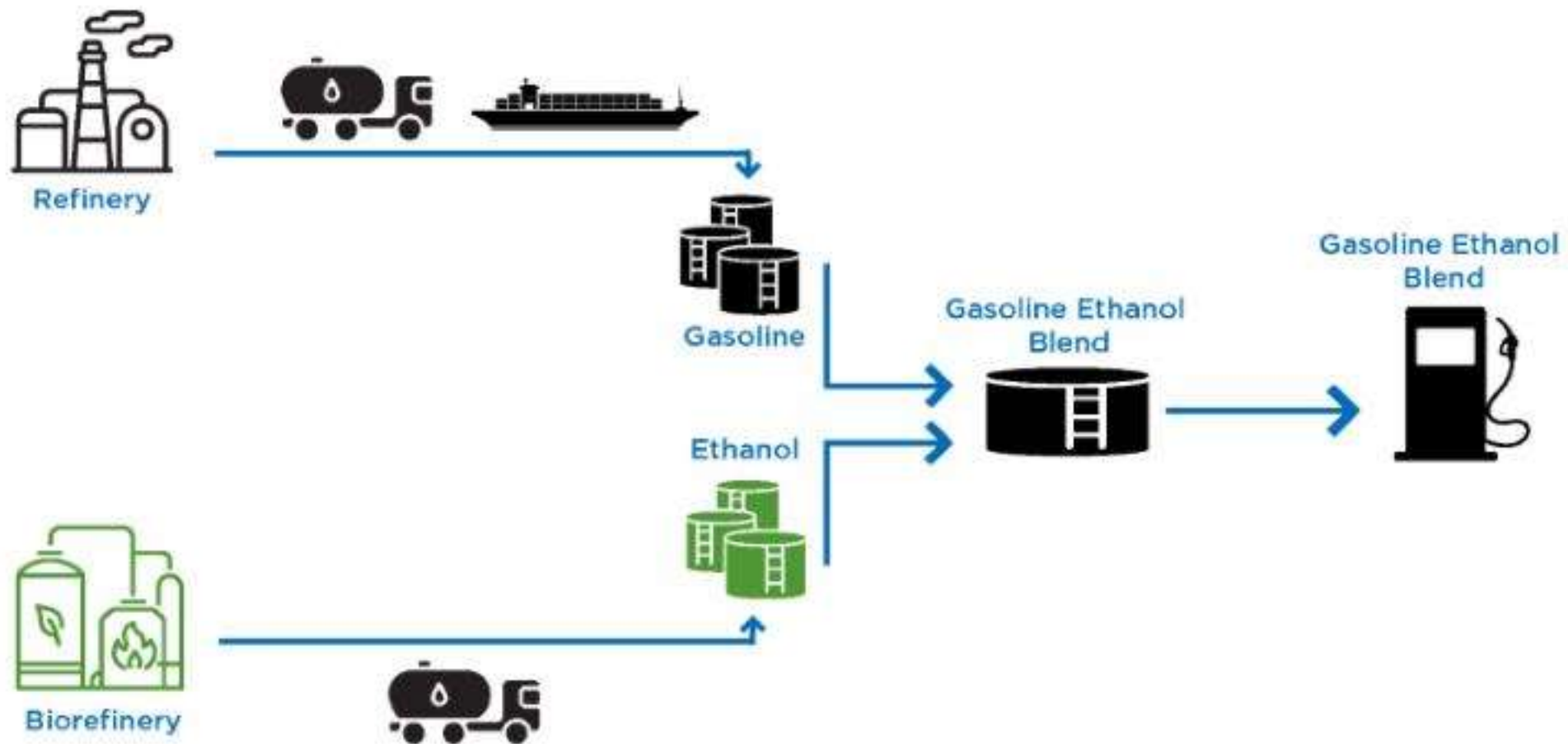
An engine designed to run on E85 can also operate on lower ethanol blends, including E60 and E50.

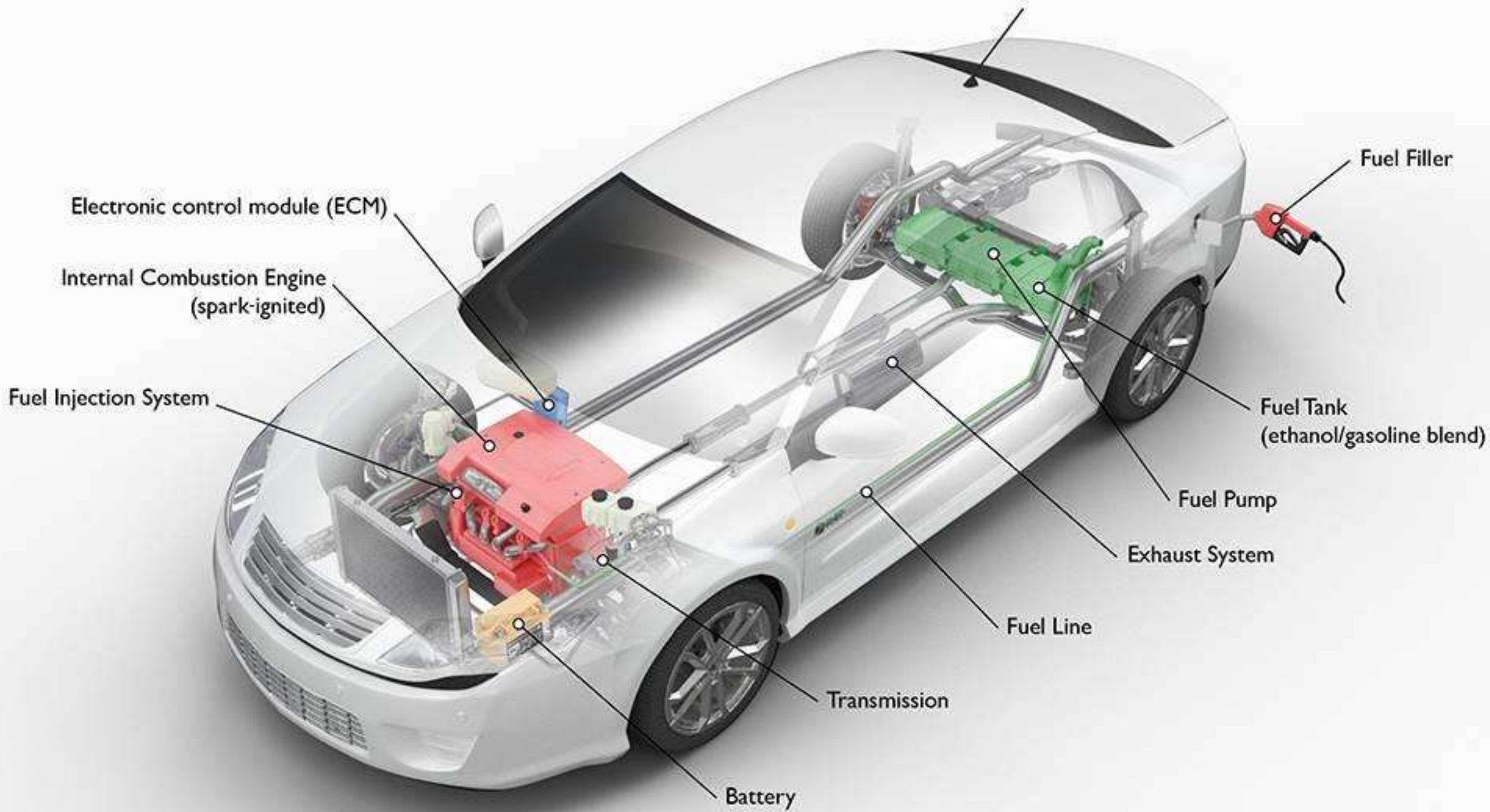
On competing demands for ethanol-blended fuel, including from aviation, where India has a 1% blending target in aviation turbine fuel for international flights under the International Civil Aviation Organization’s plan to achieve net-zero carbon emissions by 2050, the official said there was “surplus” ethanol available in the country.

The government has mandated the sale of petrol with up to 20% ethanol across all States and Union Territories from April 1.

Aspect	Details (English)	विवरण (हिंदी)
Topic	Draft rules for rollout of Ethanol 85 (E85) fuel	E85 ईंधन के लागू होने के लिए ड्राफ्ट नियम
Fuel Composition	85% ethanol + 15% petrol	85% एथेनॉल + 15% पेट्रोल
Current Status	Draft rules to be notified soon; rollout in 2–3 years	जल्द नियम जारी होंगे; 2–3 वर्षों में लागू
Reason for Push	West Asia crisis → focus on energy security	पश्चिम एशिया संकट → ऊर्जा सुरक्षा पर जोर
Existing Policy	E20 fuel (20% ethanol) already mandated (2023 policy)	E20 ईंधन पहले से लागू
Fuel Category	E85 will be a separate fuel grade	E85 अलग ईंधन श्रेणी होगी
Engine Requirement	Needs flex-fuel / compatible engines	विशेष इंजन (फ्लेक्स-फ्यूल) आवश्यक
Compatibility	E85 engines can run on E50, E60, E20	E85 इंजन अन्य मिश्रणों पर भी चल सकते हैं
Infrastructure Need	Separate dispensing pumps at fuel stations	अलग फ्यूल पंप इंफ्रास्ट्रक्चर
Environmental Benefit	Reduces carbon emissions & air pollution	कार्बन उत्सर्जन व प्रदूषण कम

Economic Benefit	Reduces oil import dependency	तेल आयात पर निर्भरता कम
Agriculture Link	Boost to sugarcane, maize farmers	गन्ना व मक्का किसानों को लाभ
Ethanol Source	Produced from molasses, sugarcane, grains	शीरा, गन्ना, अनाज से उत्पादन
India Ethanol Target	20% blending target by 2025	2025 तक 20% मिश्रण लक्ष्य
Aviation Link	1% ethanol blending target in aviation turbine fuel	विमान ईंधन में 1% मिश्रण लक्ष्य
Global Context	Brazil uses E100/E85 widely	ब्राज़ील में उच्च एथेनॉल उपयोग
Surplus Status	India has surplus ethanol production	भारत में एथेनॉल अधिशेष उपलब्ध
Key Challenge	Engine cost, infra cost, food vs fuel debate	इंजन लागत, ढांचा, खाद्य बनाम ईंधन मुद्दा







Crop



Fermentation



Purification



Ethanol



Blending



Transportation



Fuel Station

India and South Korea

vision for the India-South Korea special strategic partnership, and a comprehensive framework for partnership in shipbuilding, shipping & maritime logistics.

"Today, with President Lee's visit, we are going to transform this trusted partnership into a futuristic partnership. We will realise new opportunities for co-operation in every field, from chips to ships, talent to technology, environment to energy, and together we will ensure the progress and prosperity of both countries," Modi said after the bilateral meeting.

Referring to the wars in West Asia and Europe, he said: "In this era of global tension, India and Korea together send a message of peace and stability. We are very pleased that today Korea is joining the International Solar Alliance and the Indo-Pacific Oceans Initiative. Through our joint efforts, we will continue to contribute to a peaceful, progressive and inclusive Indo-Pacific."

Lee said: "Considering the current situation in the Middle East, we will sustain cooperation for supply stability of energy resources and key commodities... we agreed to speed up the negotiations to upgrade our CEPA to create more favourable trade and investment conditions."

"We agreed to maintain close collaboration in addressing regional peace and international issues. Prime Minister Modi and I exchanged our views on the recent events unfolding in the Middle East, and agreed that restoring stability and peace... is crucial to global security and the economy," he said.

"Bilateral trade between India and Korea has reached \$27 billion today. We have taken several important decisions today to increase this to \$50 billion by 2030," Modi said, referring to the

joint declaration on resumption of talks to upgrade the CEPA.

India and South Korea's CEPA, in force since 2010, has increased bilateral trade from US\$ 14.2 billion at the time of its implementation to US\$ 26.89 billion in 2024-25. Of this, India's imports from South Korea account for about US\$ 21 billion, while exports stand at about US\$ 5.8 billion. "To facilitate financial flows between the two countries, we have launched the India-Korea Financial Forum. To strengthen business cooperation, we have established an Industrial Cooperation Committee. To enhance cooperation in critical technologies and supply chains, we are initiating an Economic Security Dialogue," Modi said. "To facilitate the entry of Korean companies, especially SMEs, into India, we will also establish a Korean Industrial Township. And within the next year, we will upgrade the India-Korea Trade Agreement."

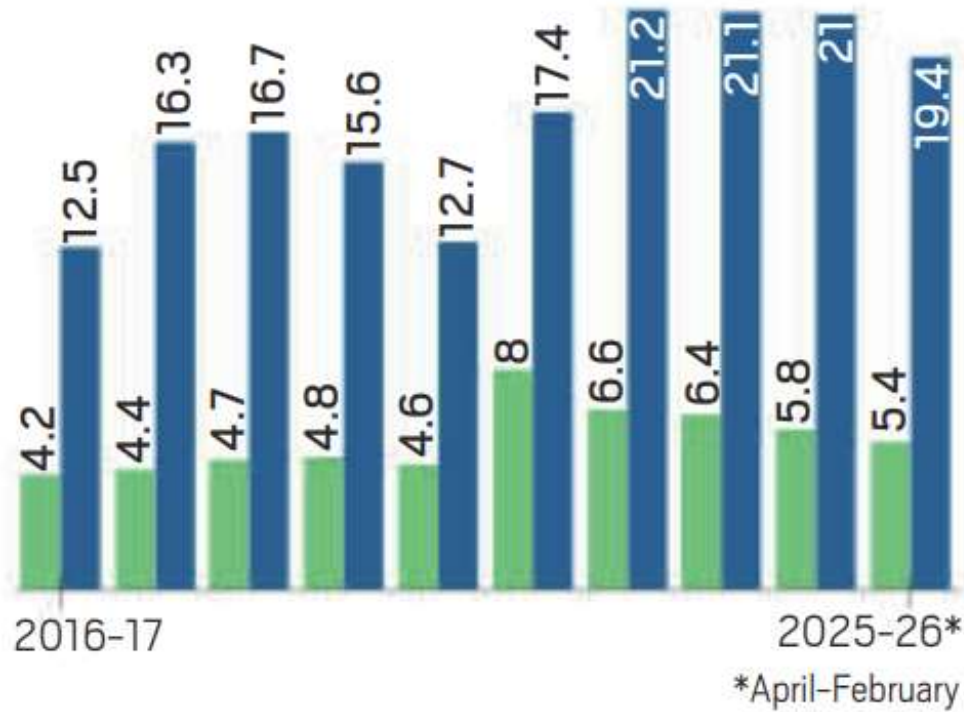
"We are launching the India-Korea Digital Bridge to deepen partnerships in AI, semiconductors, and information technology. We are signing MoUs in areas such as shipbuilding, sustainability, steel and ports," Modi said.

Lee said they would start a Mumbai Korea Centre as a permanent K-pop performance hall and international hub of K-culture. Modi said: "Through collaboration in the culture and creative industries, we will also break new ground in film, animation and gaming... Today, K-pop and K-dramas are becoming increasingly popular in India. Similarly, recognition of Indian cinema and culture is growing in Korea. We are delighted that President Lee himself is a fan of Indian cinema. To strengthen this cultural connection, we will organise the India-Korea Friendship Festival in 2028," Modi said.

BOOST TO TIES

India-South Korea trade

■ Export (\$ billion) ■ Import (\$ billion)



Aspect	Details (English)	विवरण (हिंदी)
Nature of Relation	Special Strategic Partnership	विशेष रणनीतिक साझेदारी
Focus Areas	Shipbuilding, shipping, maritime logistics	जहाज निर्माण, शिपिंग, समुद्री लॉजिस्टिक्स
Leadership Interaction	PM Narendra Modi & President Yoon Suk Yeol (Lee referenced)	प्रधानमंत्री मोदी व दक्षिण कोरिया के राष्ट्रपति
Global Context	Cooperation amid West Asia tensions	पश्चिम एशिया तनाव के बीच सहयोग
Indo-Pacific Role	Korea joins International Solar Alliance & Indo-Pacific Oceans Initiative	कोरिया ISA व इंडो-पैसिफिक पहल से जुड़ा
Trade Agreement	CEPA (Comprehensive Economic Partnership Agreement)	व्यापक आर्थिक साझेदारी समझौता
CEPA Status	In force since 2010 , upgrade talks ongoing	2010 से लागू, उन्नयन वार्ता जारी
Bilateral Trade	Increased from \$14.2B → \$26.89B (2024-25)	व्यापार 14.2 से बढ़कर 26.89 अरब डॉलर
Trade Composition	Imports ~\$21B, Exports ~\$5.8B	आयात ~21 अरब, निर्यात ~5.8 अरब

Target	Trade target \$50 billion by 2030	2030 तक 50 अरब डॉलर लक्ष्य
Economic Initiatives	India-Korea Financial Forum, Industrial Cooperation Commission	वित्तीय मंच व औद्योगिक सहयोग
New Initiative	Economic Security Dialogue (tech & supply chains)	आर्थिक सुरक्षा संवाद
Technology Cooperation	AI, semiconductors, digital technology	AI, सेमीकंडक्टर, डिजिटल टेक
Digital Initiative	India-Korea Digital Bridge launched	डिजिटल ब्रिज पहल शुरू
Investment Boost	Korean SMEs encouraged in India	कोरियाई MSMEs को प्रोत्साहन
Industrial Project	Korea Industrial Township planned in India	औद्योगिक टाउनशिप प्रस्ताव
Energy Cooperation	Supply stability of energy resources	ऊर्जा आपूर्ति स्थिरता
Cultural Diplomacy	K-pop, K-drama & Indian cinema exchange	K-पॉप, K-ड्रामा व भारतीय सिनेमा
Future Event	India-Korea Friendship Festival (2028)	2028 में मैत्री उत्सव
Institutional Initiative	Mumbai Korea Centre (cultural hub)	मुंबई कोरिया केंद्र
Strategic Importance	Supply chains, Indo-Pacific stability	सप्लाई चेन व क्षेत्रीय स्थिरता



Capital and largest city	Seoul ^[a] <div><div><div></div><div>37°33′N 126°58′E﻿ / ﻿37°33′N 126°58′E</div></div></div>
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Establishment history	
• Provisional Government in-exile	11 April 1919
• American administration south of the 38th parallel	8 September 1945
• Constitution adopted	17 July 1948
• ROK established	15 August 1948
Area	
• Total	100,472 ^{[4][5][6]} km ² (38,792 sq mi) (107th)
• Water (%)	0.3
Population	
• 2026 estimate	▲ 51,106,229 ^[7] (29th)
• Density	509/km ² (1,318.3/sq mi) (27th)
GDP (PPP)	2026 estimate
• Total	▲ \$3.542 trillion ^[8] (14th)
• Per capita	▲ \$68,624 ^[8] (29th)
GDP (nominal)	2026 estimate
• Total	▲ \$1.931 trillion ^[8] (15th)
• Per capita	▲ \$37,412 ^[8] (33rd)
Gini (2021)	▼ 33.3 ^[6] medium inequality
HDI (2023)	▲ 0.937 ^[9] very high (20th)
Currency	Korean Republic won (₩) (KRW)

'TOBACCO NOT JUST A HEALTH BURDEN, IT IS A POVERTY TRAP'

10% of Indian households can rise to a higher economic class just by quitting tobacco: Study

Authors suggest integrating tobacco control with flagship poverty programmes, other nutrition and livelihood schemes

Anuradha Mascarenhas
Pune, April 20

OVER 20.49 million households — 10.6% of all households in the country — could rise to a higher economic class just by stopping spending on tobacco and redirecting that money to other needs, as per a new study published in *BMJ Global Health*. The study led by researchers at ICMR National Institute of Cancer Prevention and Research (ICMR-NICPR), Noida, and Tata Institute of Social Sciences (TISS), Mumbai, is the first to quantify at national scale the households using tobacco in different forms.

The poorest households, the study finds, spend 6.4% of their entire monthly income on tobacco, the study found. "Tobacco is not just a health burden — it is a poverty trap. We have now shown, with the most rigorous national data available, that 20 million households could move up an

economic class simply by quitting. For a rural family already spending nearly 7% of all its income on tobacco, this is not an abstraction — this is the difference between poverty and dignity. Tobacco cessation must be treated as a poverty alleviation strategy, not merely a health message," Dr Prashant Kumar Singh, Senior Scientist, ICMR-NICPR, Noida, and corresponding author told *The Indian Express*.

India carries one of the world's largest tobacco burdens. With over 267 million tobacco users, which is nearly a quarter of the adult population, tobacco is the single largest preventable cause of death and disease in the country, responsible for over a million deaths every year. Its established links to cancers of the mouth, throat, lung, and oesophagus as well as to heart disease and stroke, have long made it a central concern of public health policy.

Drawing on 2,61,746 na-

E. EXPLAINED

Tobacco Tally & Toll

India is the second largest consumer and producer of tobacco globally. Tobacco products account for nearly 1.35 million deaths every year (3,700 deaths every single day). India also accounts for 70% of the global burden of smokeless tobacco, and 27% of all cancers in India are attributable to tobacco use. Nearly 9 out of 10 adults who use tobacco started before age 18 when the brain is still developing, making young people far more susceptible to nicotine dependence. Among adolescents specifically, tobacco prevalence among those aged 13-15 was 8.5% in 2019 according to the Global Youth Tobacco Survey. In India, 9.6% of boys and 7.4% of girls use tobacco, it said.

tionally representative households from the 2022-23 survey on Household Consumption Expenditure, the study found that the poorest families are

paying the highest price. According to the study (The economics of quitting: estimating the uplift potential of Indian households through tobacco cessation), a family in the lowest income group spends 6.4% of its entire monthly income on tobacco. A family at the top spends just 2%. Among the poorest households, 5.62 million (12.4%) could escape their income class entirely through cessation, the study suggests.

According to the researchers, 17 million rural households could move up an economic class through tobacco cessation, compared to 3.5 million urban households. Rural families spend a larger share of income on tobacco (6.6% vs 5.6% in cities) and have far fewer financial safety nets. The rural uplift rate is 60% higher than in urban areas. Also 7.12 million lower-middle-income households (16.8%) could advance to a higher income bracket through cessation.

"This study reframes the conversation on tobacco. It is no longer sufficient to speak of lives saved, we must speak of livelihoods transformed. When a family quits tobacco, they do not just reduce their cancer

risk, they reclaim the income to feed their children, pay school fees, and seek timely medical care. Our findings demand that tobacco control be placed at the centre of poverty and development agenda," said Dr Shalini Singh, Director, ICMR-National Institute of Cancer Prevention and Research (ICMR-NICPR), Noida.

According to Dr Montu Bose, School of Health Systems Studies, TISS Mumbai, the household expenditure data tells a story that tobacco is actively blocking economic mobility for millions of Indian families. "This study contributes evidence that bridges public health and social equity in such a direct, policy-relevant way," Dr Bose said.

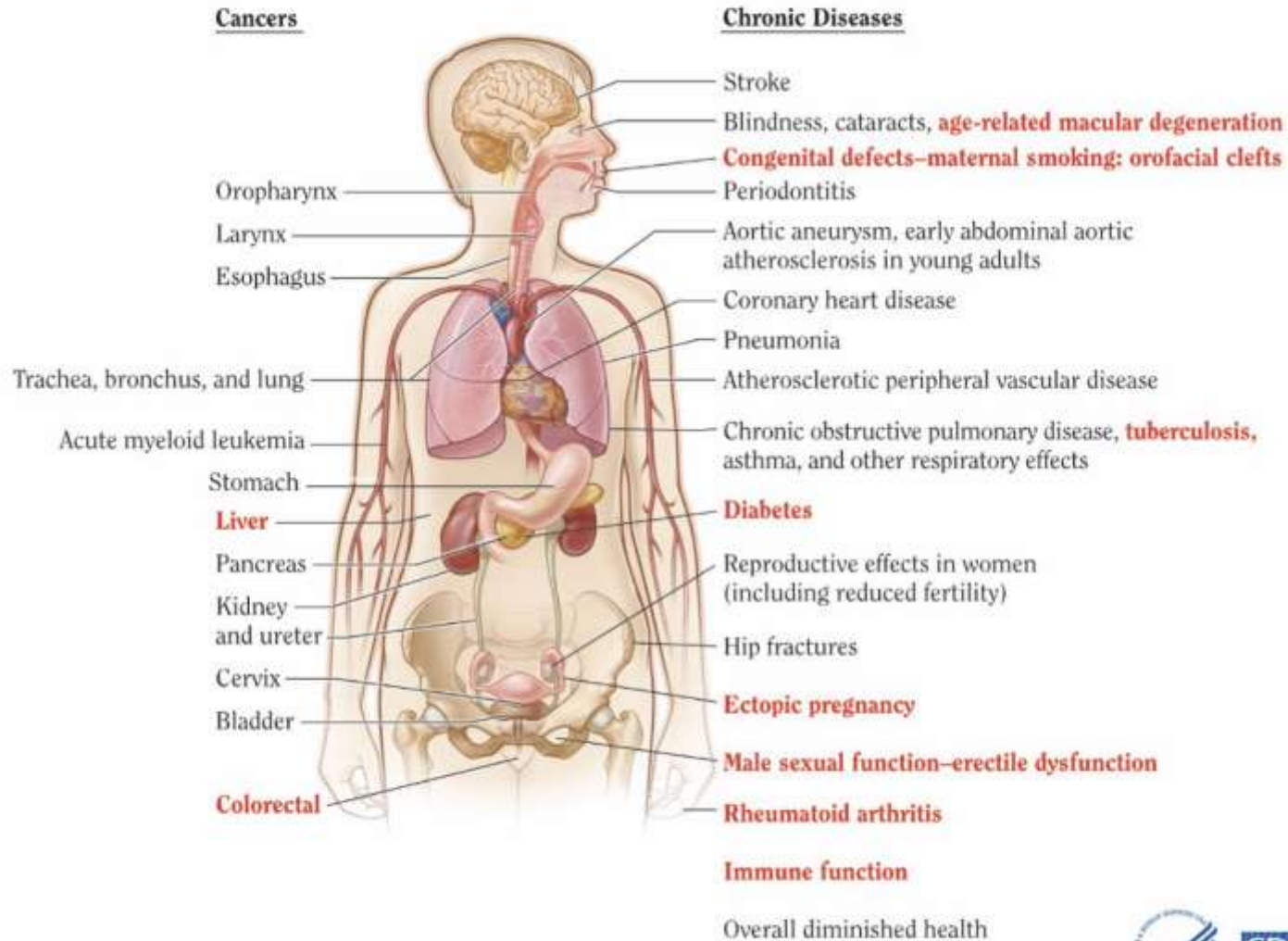
Study authors have pointed out that no new government schemes or additional cash transfer are required. "The resources are already there ... What is vital is to integrate tobacco control into flagship poverty programmes and other nutrition and livelihood schemes. International development organisations should likewise incorporate cessation into their poverty reduction frameworks for low- and middle-income countries," they said.

Aspect	Details (English)	विवरण (हिंदी)
Core Theme	Tobacco is not just a health issue but a poverty trap	तंबाकू केवल स्वास्थ्य नहीं बल्कि गरीबी का जाल है
Key Finding	10.6% households (~20.49 million) can move to higher economic class by quitting tobacco	10.6% परिवार (लगभग 2.04 करोड़) तंबाकू छोड़कर ऊपर जा सकते हैं
Study Source	BMJ Global Health + ICMR-NICPR + TISS Mumbai	BMJ ग्लोबल हेल्थ, ICMR-NICPR, TISS
Poorest Households Impact	Spend 6.4% of income on tobacco	गरीब परिवार आय का 6.4% तंबाकू पर खर्च करते हैं
Urban vs Rural	Rural spends more (6.6%) vs Urban (5.6%)	ग्रामीण खर्च अधिक (6.6%), शहरी (5.6%)
Income Mobility	<ul style="list-style-type: none"> • 5.62 million poorest escape poverty • 7.12 million move to higher bracket 	<ul style="list-style-type: none"> • 56 लाख गरीबी से बाहर • 71 लाख ऊपर उठेंगे
Rural vs Urban Mobility	17 million rural vs 3.5 million urban households improve	1.7 करोड़ ग्रामीण vs 35 लाख शहरी
Health Impact	Tobacco causes 1.35 million deaths/year in India	भारत में 13.5 लाख मौतें/वर्ष

Global Rank	India is 2nd largest consumer & producer	भारत दूसरा सबसे बड़ा उपभोक्ता व उत्पादक
Cancer Link	27% cancers in India due to tobacco	27% कैंसर तंबाकू से
Smokeless Tobacco	India accounts for 70% global burden	70% वैश्विक बोझ भारत में
Youth Concern	9/10 users start before age 18	90% लोग 18 वर्ष से पहले शुरू करते हैं
Adolescent Data	13–15 age prevalence: 8.5% (2019)	13–15 आयु में 8.5% उपयोग
Gender Data	Boys: 9.6%, Girls: 7.4%	लड़के 9.6%, लड़कियां 7.4%
Economic Insight	Tobacco blocks income mobility	आय वृद्धि में बाधा
Policy Suggestion	Integrate tobacco control with poverty alleviation schemes	गरीबी उन्मूलन योजनाओं से जोड़ना
No Extra Funds Needed	Use existing welfare schemes	अतिरिक्त बजट की आवश्यकता नहीं
Social Impact	Savings → food, education, healthcare	बचत → भोजन, शिक्षा, स्वास्थ्य
Key Concept	"Tobacco cessation = Poverty reduction tool"	तंबाकू छोड़ना = गरीबी कम करने का साधन

Risks from Smoking

Smoking can damage every part of your body





World Health
Organization

TOBACCO THREATENS US ALL

HEALTH &
ECONOMIC
IMPACTS

TOBACCO KILLS PEOPLE EVERY YEAR

MORE THAN
7
MILLION

TOBACCO THREATENS HEALTH, ECONOMIES AND DEVELOPMENT.



12% OF DEATHS OF ALL PEOPLE AGED **OVER 30** ARE DUE TO TOBACCO.



GLOBAL ANNUAL COSTS FROM TOBACCO USE ARE **US\$1.4 TRILLION** IN **HEALTHCARE** EXPENDITURE AND LOST PRODUCTIVITY FROM ILLNESS AND PREMATURE DEATH.

#NOTOBACCO

GUTKA PACKS A KILLER PUNCH FOR YOUR DNA

■ Chewing tobacco contains 3,000 chemicals including several known cancer causing agents and toxic metals such as arsenic, nickel and cadmium

■ *It is directly responsible for oral cancers and is a major risk factor for cancers of lung, stomach, pancreas, kidney, bladder, colon and uterine cervix*

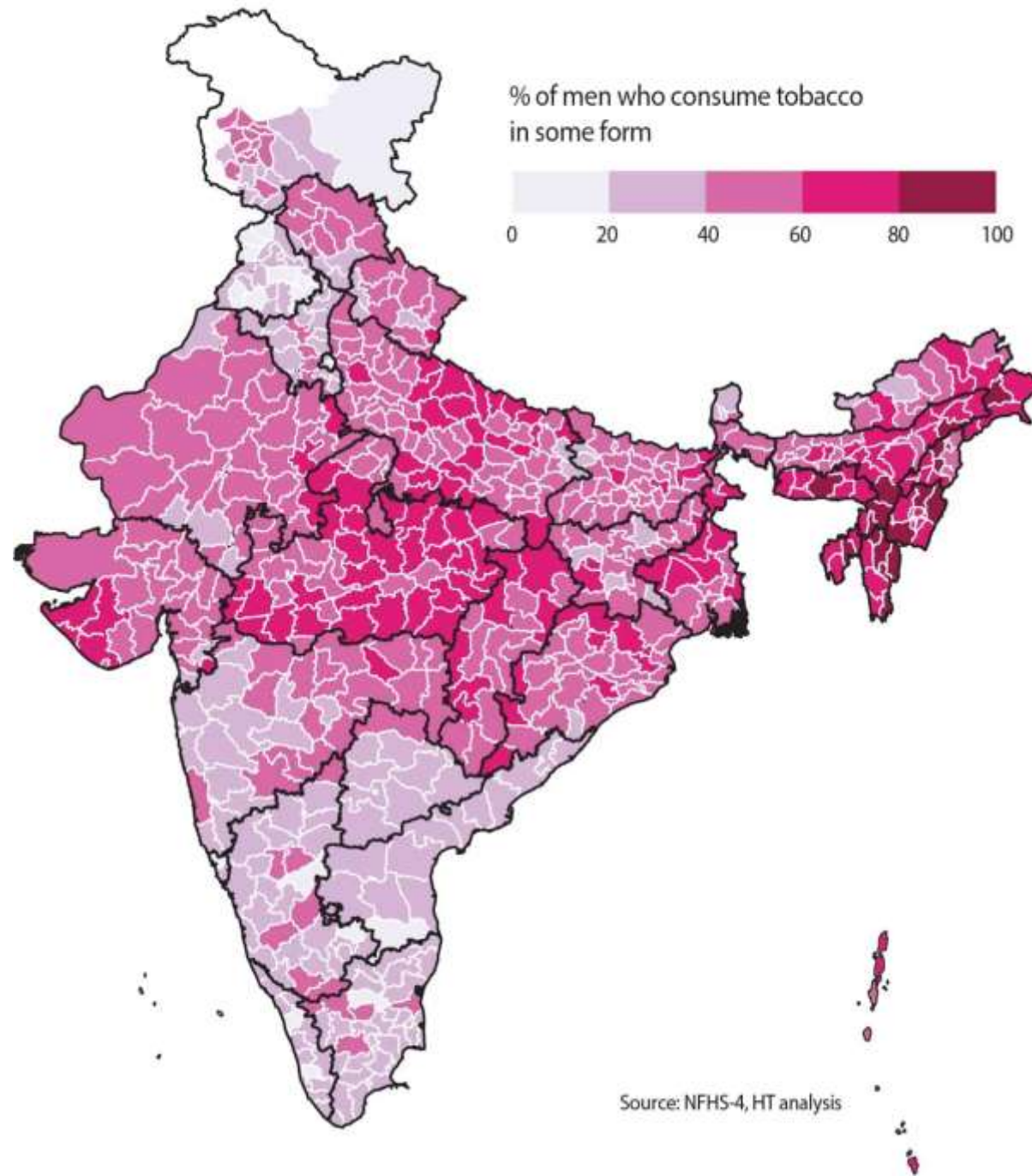
■ Long term use of chewing tobacco can cause genetic damage and such defects may get



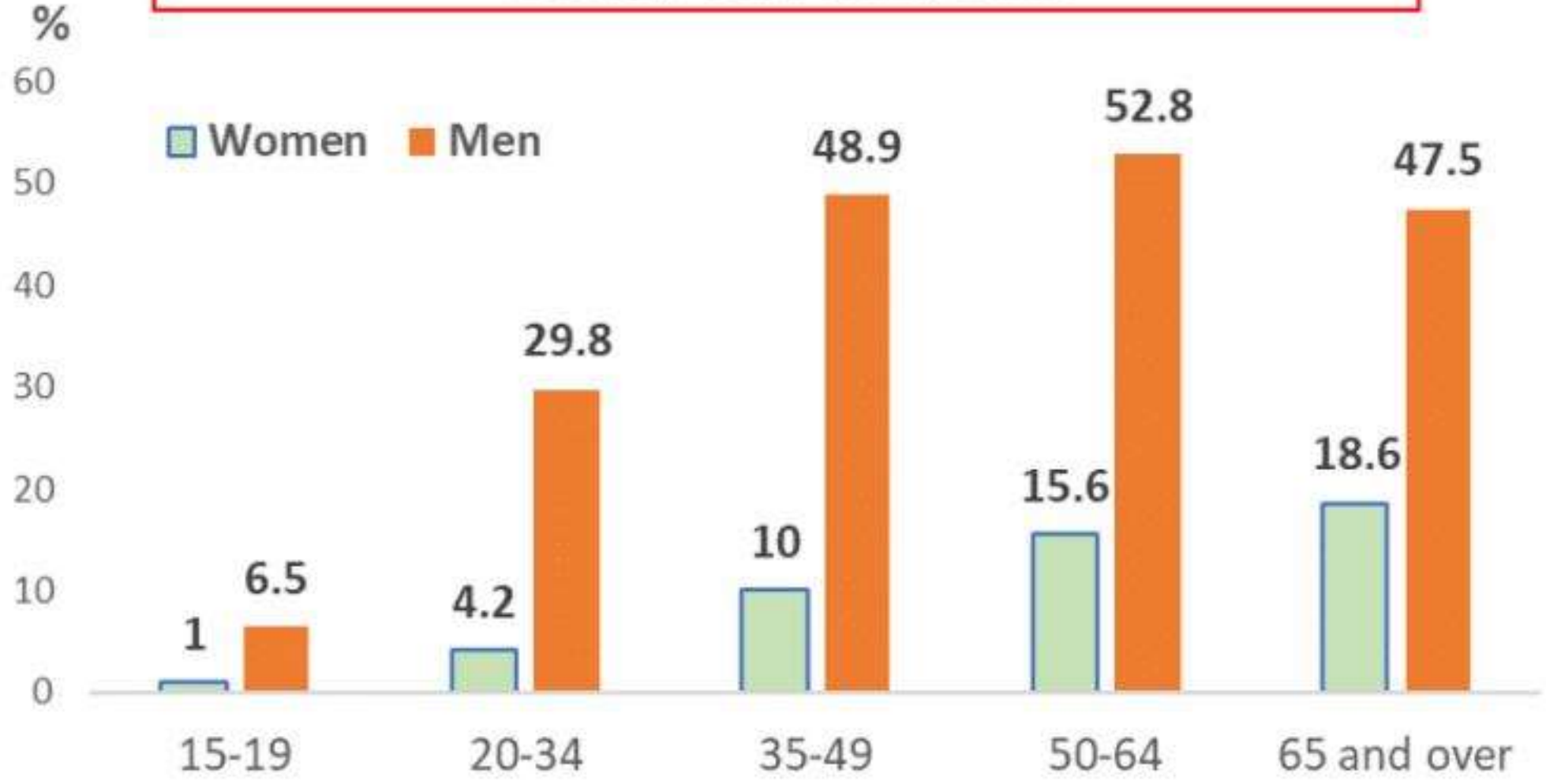
passed on to the future generations

■ *The use of chewing tobacco is not just prevalent in villages, but is spreading to urban areas and among the educated with convenient packaging and advertising*

Tobacco consumption is higher in Central and East India



Current Adult (15+age) Tobacco Use Prevalence by Age & Gender, India 2019/2021



Global economic cost and health burden of tobacco use

USD 422 Billion

Healthcare expenditure due to smoking-attributable diseases

5.7%
of total global healthcare expenditure

USD 357 Billion

Indirect cost of morbidities caused by smoking



USD 657 Billion

Indirect cost of mortalities caused by smoking

Malignant neoplasms
Cardiovascular diseases
Respiratory diseases
Lower respiratory infections
Tuberculosis

1.8%
world GDP

40%

of the total economic costs are incurred in LMICs

** Total economic cost of smoking (from health expenditures and productivity losses together).*

The numbers of lives behind these costs include:

2.1 Million
deaths caused by smoking

13.6 Million
years lost due to disability among adults ages 30 to 69

18 Million
years of labor lost due to death

26.8 Million
years of lost labor due to smoking-related diseases

40%
of USD 1.436 Trillion



States' fiscal deficit likely to rise to 3.5%

FISCAL DEFICIT OF states is projected to rise to 3.5% of state gross domestic product (GSDP) in FY27 from 3.3% in FY26 because of higher revenue expenditure, according to an analysis

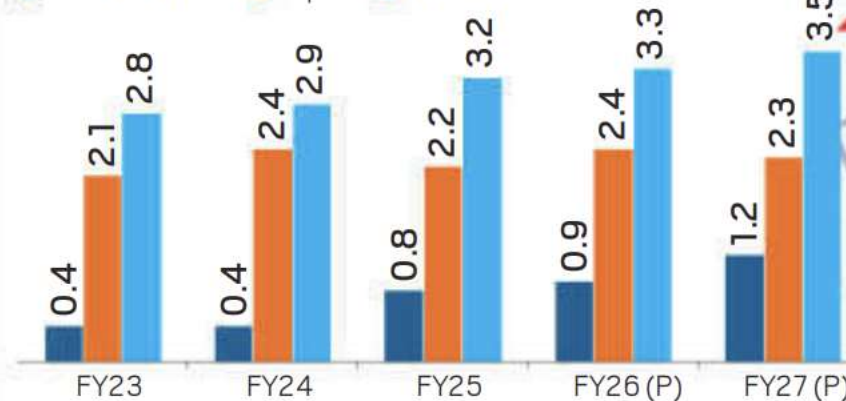
of top 15 states by CareEdge Ratings, reports **Saikat Neogi**. These states account for 89% of India's GSDP. Revenue deficit is likely to widen to 1.2% of GSDP in FY27 from 0.9% in FY26, reflecting rise

in social expenditure and moderate revenue growth. The growth in capital expenditure is expected to moderate to around 8-10% in FY27 from 17% in FY26, reflecting tighter fiscal headroom.

Capital outlay and deficits

% of gross state domestic product

■ Revenue deficit ■ Capex ■ Fiscal deficit



Source: Care Edge Ratings



Word of the day

Grandiloquent:

using long or complicated words in order to impress people

Synonyms: pretentious, flowery, pompous

Usage: *His grandiloquent style made the article hard to read.*

Pronunciation: newsth.live/grandiloquent

International Phonetic

Alphabet: /grændɪləkwənt/

Word of the day

Jeer:

showing your contempt by derision

Synonyms: taunt, mock, insult

Usage: *Even after the jeers, he continued his speech.*

Pronunciation: newsth.live/jeer

International Phonetic

Alphabet: /dʒɪə/





Thank you 😊